# Annotated Bibliography on "Birdseye" Figured Grain

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## Foreword

Although the distinctive figured grain known as "birdseye" or "bird's-eye" has intrigued scientists and woodworkers for centuries, relatively little is known about this phenomenon. Remarkably, the relative scarcity of and high commercial demand for birdseye wood has generated few empirical studies, though this may change as research priorities become clearer and prices for field-run, prime veneer logs approach $70,000 per thousand board feet.

Critical to the success of future research on birdseye is the development of a solid reference base. This annotated bibliography is the result of numerous literature searches we conducted while investigating the relationship between birdseye sugar maple and its local environment. In compiling what may well be the most complete survey of the relevant literature on birdseye, we encountered several challenges. First, the term "birdseye" has evolved over the past century, making searches of computerized databases difficult. At the turn of the century, "bird's-eye" was the favored term, though Snow (1917) used the current form. Also, birdseye merits only casual mention in dozens of texts. These sources were excluded from this bibliography. Finally, where there was considerable duplication of material among several editions of a text, only one edition is included. The citations in this publication are arranged alphabetically by senior author, and a subject index and index of authors are included. In addition to the published literature cited in this bibliography, the following unpublished reports contain information on birdseye maple:

Berry, F.M. 1942. **The anatomy of bird'seye figure in sugar maple (*Acer saccharum* Marsh.).** East Lansing, MI: Michigan State College, Department of Forestry. 19 p.

Davis, E.M. 1961. **Some observations on bird's-eye maple.** Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory. 3 p.

Forest Products Laboratory. 1987. **Birds'eye maple/curly-grained wood.** Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory. 1 p.

Stokke, D.D. 1992. **Birdseye figure in sugar maple.** (Poster). St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. [Available from author].

1. Bailey, Lowell F. 1948. **Figured wood: a study of methods of production.** Journal of Forestry. 46(2): 119-125.

Analyzes early attempts to produce several types of figure by root grafts and cuttings, including birdseye sugar maple.

2. Baterden, J.R. 1912. **Timber.** New York: D. Van Nostrand: 112, 320.

Attributes birdseye in sugar maple to the actions of boring insects, and suggests that birdseye is found only in the inner portions of the bole.

3. Baumer, M. 1953a. **Figure in wood, part 2.** Wood. 18: 212-215.

Describes figured wood in several species that are similar to birdseye, and suggests that these "burrs" result from cambial damage due to parasites (primarily fungi) and human actions.

4. Baumer, M. 1953b. **Figure in wood, part 4.** Wood. 18: 302-304.

Discusses Bailey's (1948) hypotheses on birdseye formation.

5. Beals, Harold O.; Davis, Terry C. 1977. **Figure in wood: an illustrated review.** Auburn, AL: Auburn University Agricultural Experiment Station. 79 p.

Describes the physical appearance of birdseye in sugar maple and groups birdseye with other figures (including bear scratches and dimple) as "related to indented growth rings." Suggests that birdseye is the result of local suppressions in the divisions of cambial tissues. Birdseye sugar maple is more common in the northern portion of that species' range than elsewhere, and has been reported in ash, walnut, birch, and Cuban mahogany.

6. Betts, H.S. 1944. **Maple.** In: American woods: Washington, DC: U.S. Department of Agriculture, Forest Service: 8.

Supports the adventitious bud hypothesis of birdseye formation in sugar maple.

7. Borthwick, A.W. 1905. **The production of adventitious roots and their relation to bird's-eye formation (Maser-holz) in the wood of various trees.** Notes from Royal Botanic Garden. IV(XVI): 15-36.

Discusses several hypotheses on birdseye formation, including adventitious buds. Links adventitious root formation with birdseye and birdseye formation to the production of lignified rhizogenous medullary rays, which have been found in cypress, cedar, maple, apple, and elm. May be describing phenomena different from traditional concepts of birdseye.

8. Boulger, George Simonds. 1902. **Wood.** London: Edward Arnold: 76, 98, 241, 244-245.

Associates birdseye sugar maple with burrs and reports occurrence of birdseye in hedge maple. Mentions occasional use of birdseye in tables of ancient Rome.

9. Boulton, E.H.B.; Jay, B. Alwyn. 1945. **Building timbers.** 2nd ed. London: George Newnes: 6, 91.

Suggests that birdseye (also referred to as peacock's eye) may be the result of the actions of insects, fungi, or parasitic sinkers of mistletoe or lianas. States that birdseye in sugar maple results from fungal influences on the cambium.

10. Boulton, E.H.B.; Jay, B. Alwyn. 1946. **British timbers: their properties, uses, and identification.** 2nd ed. London: Adam and Charles Black: 13, 72.

Links birdseye with irregular grain and burrs. Notes occurrence of birdseye in field and sugar maple.

11. Boyce, John Shaw. 1961. **Forest pathology.** 3rd ed. New York: McGraw-Hill: 298-299.

Compares and contrasts birdseye sugar maple with burl in black walnut and black cherry. Links birdseye maple with fungi but also describes a similar grain abnormality in birch of northern Europe that is thought to develop from an internal gummosis of cells. This abnormality is categorized under "infectious galls."

12. Bragg, Don C. 1994. **Birdseye in sugar maple (*Acer saccharum* Marsh.): response to environment and geographic distribution.** Houghton, MI: Michigan Technological University, School of Forestry and Wood Products. 98 p. M.S. thesis.

Reviews the significant literature on birdseye sugar maple and investigates the hypothesis that competition triggers birdseye by comparing estimates of local density from birdseye and nonbirdseye maples. No significant relationship was found for local density, though birdseye had significantly greater diameters. While few variables associated environmental factors and birdseye maple, logistic regression models were developed to predict birdseye occurrence.

13. Bragg, Don C. 1995. **Birdseye sugar maple's geographic range and some implications for management.** Northern Journal of Applied Forestry. 12(2): 86-89.

Describes the geographic distribution of birdseye throughout the botanical range of sugar maple. Birdseye sugar maple was found in most of the states and provinces surveyed, with the greatest number of reports of birdseye from the upper Midwest and Northeast. This distribution is discussed with respect to its relevance to ecological mechanisms and silvicultural patterns. Includes management recommendations.

14. Bragg, Don C.; Mroz, Glenn D.; Reed, David D.; Shetron, Stephen G.; Stokke, Douglas D. 1997. **Relationship**

**between birdseye sugar maple (*Acer saccharum*) occurrence and its environment.** Canadian Journal of Forest Research 27: 1182-1191.

Describes extensive test (nearly 600 sugar maples sampled) of local density (competition/suppression) hypothesis. Although birdseye was much more common in old-growth than managed stands, there was no link between birdseye maple and local density. Other environmental conditions considered included soils, habitat type, and stand structure. A logistic regression model for predicting birdseye occurrence in individual trees is presented

15. Bragg, Don C.; Stokke, Douglas D. 1994. **Field identification of birdseye in sugar maple (*Acer saccharum* Marsh).** Res. Pap. NC-317. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 16 p.

Describes birdseye structures and procedures for identifying birdseye in standing sugar maples, and discusses some of the hypotheses on birdseye maple formation. Recommendations for birdseye management are included.

16. Brough, J.C. 1947. **Timbers for woodwork.** London: Evans Brothers Limited: 160.

Attributes birdseye formation in sugar maple to bird peck or the actions of insect borers.

17. Brown, H.P.; Panshin, A.J.; Forsaith, C.C. 1949. **Textbook of wood technology.** Volume I. New York: Mc-Graw Hill: 277-278.

Largely the same material as Panshin and de Zeeuw (1980) and earlier versions of this text by Brown and Panshin.

18. Carpenter, J.B.; Furr, J.R. 1960. **Wood pitting of undetermined cause in unbudded citrus seedlings.** Plant Disease Reporter. 44(12): 916-918.

Description of wood pitting phenomenon appears similar to birdseye in sugar maple. See DuCharme and Knorr (1954) and Shigo (1986).

19. Chafe, S.C. 1969. **Dimpled grain in wood.** Forestry Chronicle. 45(3): 173-179.

Focuses on dimpled grain in jack, lodgepole, and ponderosa pine and Sitka spruce, comparing these grain patterns with birdseye.

20. Conrad, Joachim. 1971. **Der vogelaugenahorn.** Der Forst-und Holzwirt. 20: 398-402.

Associates birdseye in some species with suppressed buds but distinguishes "veining" from birdseye in sugar maple. Provides an abbreviated description of birdseye maple's native range, and discusses possible causes of birdseye maple, including bird peck, fungi, suppressed buds, and genetics.

21. Conrad, Joachim. 1988. **Rare abnormal structures and colours of wood of broadleafed tree species—characteristics, economic importance, theories about origin.** Die Holzzucht. 42(½): 1-9.

Describes the structure of birdseye in sugar maple and contrasts the birdseye in maple with that in "veined maple." Reports the existence of birdseye in "mountain maple" (perhaps *Acer pseudoplatanus*) in the Muehlhausen/ Thueringen region of Germany. States that birdseye abnormality begins between the bark and the bast rather than in the cambium. Discusses macroscopic characteristics, nomenclature, and economics of birdseye as well as the possible origin of other grain abnormalities.

22. Constantine, Albert, Jr. 1959. **Know your woods.** New York: Home Craftsman Publishing: 76, 80-82, 157, 244, 275, 307-308.

States that birdseye is reminiscent of burl but smaller and better defined. Mentions some of the hypothesized causes of birdseye in sugar maple, including suppression. Also states that 20 years after release by thinning, birdseye maples cease production of the figured wood. Lists several other species that have birdseye or birdseye-like grain abnormalities, including European white birch, jongkong, and ponderosa pine.

23. Corkhill, Thomas. 1979. **A glossary of wood.** London: Stobart and Son: 43, 392.

Describes birdseye in sugar maple and discusses possible causes of birdseye formation. Links birdseye with a similar abnormality called peacock's eye, which is thought to be caused by fungi.

24. Densmore, Hiram D. 1920. **General botany.** Boston: Ginn and Company: 88, 90, 392.

Suggests that birdseye sugar maple is the result of the woody elements following an undulating course, and that birdseye may result from suppressed buds, unsuccessful branches, or injuries from wood borers.

25. Desch, H.E. 1968. **Timber: its structures and properties.** 4th ed. Toronto, ON: Macmillan: 61-62.

Describes birdseye as the result of a temporary injury to the cambium.

26. DuCharme, E.P.; Knorr, L.C. 1954. **Vascular pits and pegs associated with diseases in citrus.** Plant Disease Reporter. 38(3): 127-142.

Does not refer directly to birdseye, but many of the pits and pegs described in fruit trees are similar in appearance and distribution to birdseye in sugar maple. Some descriptions also match the "fingernail" form of birdseye maple. States that development of stem pitting is a function of several diseases, including tristeza and xyloporosis, possibly vectored by insects. Stem pitting frequently was observed at

bud unions (between rootstock and scions of grafted fruit trees).

**27.** Edlin, Herbert L. 1969. **What wood is that?** New York: Viking Press: 104-105.

Describes birdseye in sugar maple and suggests that birdseye formation is a product of secondary branch-bud initials (analogous to suppressed buds).

**28.** Feihl, O.; Godin, V. 1973. **The rotary cutting of hard maple.** Inf. Rep. OP-X-63. [Place of publication unknown]: Canadian Forest Service, Department of the Environment: 3, 6.

Describes difficulty in peeling veneer from sugar maple logs with birdseye and other irregular grain. Recommends the use of a well-adjusted lathe at the proper temperature when peeling birdseye maple veneer.

**29.** Fullerton, George. 1996. **Black market booming for bird's-eye.** Atlantic Forestry Review. 2(3): 16, 18.

Describes problems experienced by forest owners in New Brunswick from birdseye maple (and other veneer tree) poaching. Includes statistics for legal proceedings against those charged with the thefts (about 85 percent of which involve birdseye). Discusses interest in the use of DNA analysis in investigation of poaching as well as current work on regeneration of birdseye maple.

**30.** Gagnon, John G. 1996. **Hard maple, hard work.** Marquette, MI: Northern Michigan University Press. 232 p.

Includes series of interviews with workers in the sugar maple industry in Michigan's Upper Peninsula. Details their knowledge of birdseye sugar maple, from where it grows best to the attitudes of buyers of birdseye veneer.

**31.** Ganong, William F. 1916. **A textbook of botany for colleges**. New York: MacMillan: 198.

Suggests that birdseye maple is closely related to "fasciations" or growth abnormalities and describes birdseye as unregulated bud development (basically the suppressed bud hypothesis) that probably resulted from injury.

**32.** Garratt, G.A. 1931. **The mechanical properties of wood.** New York: John Wiley and Sons: 101.

Claims that some forms of birdseye may arise from bird peck (see Wangaard 1950).

**33.** Godman, Richard M; Yawney, Harry W.; Tubbs, Carl H. 1990. **Sugar maple (*Acer saccharum* Marsh.).** In: Burns, Russell M.; Honkala, Barbara H., tech. coords. Silvics of North America. Volume 2. Hardwoods. Agric Handb. 654. Washington, DC: U.S. Department of Agriculture: 81, 83, 87.

Discusses preliminary research by Godman on samara patterns of birdseye versus nonbirdseye sugar maples as well as research on birdseye grafting conducted in the 1960's.

**34.** Hale, J.D. 1923. **Trabeculae of Sanio—their origin and distribution.** Science. 57(1466): 155.

Discusses the trabeculae of Sanio/birdseye association. See Hale (1951).

**35.** Hale, J.D. 1932. **The identification of woods commonly used in Canada.** Bull. 81. Ottawa, ON: Canadian Forest Service, Department of the Interior: 15.

Describes the structure of birdseye sugar maple and research by the Forest Products Laboratories of Canada that indicates birdseye results from a parasitic fungi locally depleting the cambium, thereby reducing wood production. Also states that depressions in the wood are common in Sitka spruce and probably are found in all softwoods.

**36.** Hale, J.D. 1951. **The structure of wood.** In: Canadian woods, their properties and uses. Ottawa, ON: Forestry Branch, Forest Products Laboratories Division: 66.

Suggests that the trabeculae of Sanio, a rod-shaped subcellular structure, is associated with birdseye and other grain abnormalities. See Keith (1971) and Stokke (1992).

**37.** Hamlin, M.J. 1931. **Peculiarities of figured wood.** Veneers. 25: 16-17.

Suggests that birdseye results from undeveloped buds.

**38.** Harris, John Maddern. 1989. **Spiral grain and wave phenomena in wood formation.** Berlin: Springer-Verlag: 25-26, 157.

Describes birdseye in sugar maple in the context of other type of dimpled grain, including that in *Pinus radiata* and *Pinus contorta*. Also lists a birdseye figure in *Betula pendula*, *B. pubescens*, and *B. kylowii*.

**39.** Hayward, Phillips A. 1930. **Wood lumber and timbers.** Volume 1. New York: Chandler Cyclopedia: 8.

Describes the physical appearance of birdseye and notes occurrence of birdseye in maple, spruces, and redwood.

**40.** Henderson, Frank Y. 1944. **Timber: its properties, pests, and preservation.** 2nd ed. London: Crosby Lockwood & Son: 38-39.

Describes birdseye in sugar maple as "burr maple," attributing it to fungal irritation of the cambium. Includes an illustration of a grain abnormality in ash referred to as "bird's-eye."

**41.** Holmberg, LeRoy H. 1933. **Is suppression a possible cause of bird's-eye in sugar maple?** Journal of Forestry. 31(8): 968-970.

Compares the growth rate during the first 200 years of 18 nonbirdseye and 26 birdseye logs at a veneer mill in Michigan. Attributes slower growth rate of birdseye maples to suppression. This difference in growth rate appeared during the first century of life for the sugar maples.

**42.** Holmberg, LeRoy H. 1934. **Is heredity a possible cause of bird's-eye in sugar maple?** Journal of Forestry. 32: 627-628.

In response to Righter (1934), the author states that his research shows that birdseye maples clearly separated into slow growth subgroups (almost without exception) and that the rarity of prolonged slow growth favors suppression rather than a combination of heredity and the environment as the cause of birdseye formation.

**43.** Howard, Alexander L. 1934. **A manual of the timbers of the world.** 2nd ed. London: MacMillan and Co.: 311-369.

Lists the uses of birdseye maple, including trimmings, cabinets, furniture, decorations in saloons, staterooms, and railway coaches.

**44.** Jane, F.W. 1970. **The structure of wood.** 2nd ed. London: Adam & Charles Black: 242, 252,254, 303.

Describes the structure and anatomy of birdseye. Supports Hale's (1932) theory of localized fungal infection.

**45.** Keenan, Bill. 1989. **Bird's-eye maple: nature flaunts her "Midas touch".** Fine Woodworking. 1: 78-80.

Provides examples of historical uses of birdseye in furniture, discusses many of the possible causes of birdseye, including a possible viral link, and provides detailed information on the physical properties of birdseye maple wood as well as hints on how to work with it.

**46.** Keith, C.T. 1971. **Observations on the anatomy and fine structure of the trabeculae of Sanio.** IAWA Bulletin. 3: 3-11.

Considers Hale's (1951) hypothesis that birdseye is a product of trabeculae of Sanio and expresses reservations about the links among fungi, trabeculae, and birdseye formation.

**47.** Keith, C.T.; Kellog, R.M. 1981. **The structure of wood.** In: Mullins, E.J.; McKnight, T.S.; eds. Canadian woods, their properties and uses. 3rd ed. Toronto, ON: University of Toronto Press: 46.

Describes birdseye in sugar maple and discusses the parasitic fungi/cambial suppression theory of birdseye formation proposed by Hale (1951).

**48.** Knight, E. Vernon; Wulpi, Meinrad, eds. 1927. **Veneers and plywood.** New York: Ronald Press: 155, 170.

Recommends prompt and careful drying of rotary cut birdseye maple to preserve favorable coloring. Notes occurrence of birdseye in walnut.

**49.** Koehler, Arthur. 1924. **The properties and uses of wood.** 1st ed. New York: McGraw-Hill Book Co.: 27-28.

Describes birdseye in maple and states that dimpled grain in lodgepole and ponderosa pine, spruce, and larch is similar to that in birdseye maple.

**50.** Korovin, V.V.; Zuikhina, S.P. 1985. **Some regularities in the structure of abnormal wood of maple, birch, and alder.** Biological Nauki. 8: 68-73.

Considers the anatomy of three species of birdseye maple from Russia, *Acer mandschuricum*, *A. platanoides*, and *A. pseudoplatanus* with respect to *Betula pendula* var. *carelica*. Concludes that birdseye is caused by disturbance in the regulation of cambial activity.

**51.** Kriebel, H.B.; Gabriel, W.J. 1969. **Genetics of sugar maple.** Res. Pap. WO-7. Washington, DC: U.S. Department of Agriculture, Forest Service: 13.

Describes a grafting experiment in which grafts from felled birdseye sugar maples were spliced onto stock in Wisconsin and Ohio.

**52.** Lake States Forest Experiment Station. 1929. **What causes "bird's-eye" maple?** Tech. Note 13. St. Paul, MN: U.S. Department of Agriculture, Forest Service, Lake States Forest Experiment Station, 1 p.

Discusses possible causes of birdseye, emphasizing the role of suppression in birdseye formation, and attempt by the Lake States Forest Experiment Station to grow birdseye sugar maple. The possible role of genetics in birdseye formation is also discussed.

**53.** Lake States Forest Experiment Station. 1929. **1929 report to the advisory committee.** St. Paul, MN: U.S. Department of Agriculture, Forest Service, Lake States Forest Experiment Station: 14.

Mentions early microscopic work by M.Y. Pillow on birdseye and early difficulties in grafting birdseye sugar maples. Indicates some seedlings of "likely [birdseye] parentage" were planted at the Upper Peninsula branch station (likely at Marquette or Dukes Experiment Forest).

**54.** Marks, G.C.; Harris, J.A.; Long, I.R. 1983. **Moth pocket, a timber defect in *Eucalyptus regnans*.** Australian Forestry. 46(3): 216-219.

Proposes that the common birdseye defect in *Eucalyptus regnans* be renamed "moth pocket" because it is the larvae of a moth that cause the abnormality.

**55.** Maxwell, Hu. 1912. **Wood-using industries of Michigan.** Lansing, MI: Wynkoop Hallenbeck Crawford Co.: 15, 48.

Associates birdseye formation with adventitious buds. Describes the tendency of birdseye to occur in maple and other species. Discusses ability of trained observer to identify birdseye in standing trees.

**56.** Maxwell, Hu. 1917. **Figure due to twisted grain.** Hardwood Record. 43(3): 18-19.

Discusses the merits of several theories on birdseye formation, including bird peck, frost, and adventitious buds, and supports adventitious buds as the cause of birdseye. Notes occurrence of birdseye in silverbell and yellow-poplar and suggests that burl can be described as "compound birdseye."

**57.** McKean, Herbert B. 1940. **The texture, grain, and figure of wood.** Journal of Forestry. 38: 664-665.

Describes birdseye and blister figures as products of irregular grain.

**58.** Menninger, Edwin A. 1967. **Fantastic trees.** New York: Viking Press: 187, 189.

Compares and contrasts the appearance of birdseye with indented rings. Suggests that birdseye is similar to conditions resulting from the temporary, localized suppression of cambial growth, perhaps caused by a disease.

**59.** Mitchell, Harold L. 1960. **New antishrink treatment stabilizes gunstock wood.** Wood and Wood Products. 65(11): 50, 52, 102.

Birdseye sugar maple was included in test stock for antishrink treatment.

**60.** Mitchell, Harold L. 1962. **A concept of intrinsic wood quality, and nondestructive methods for determining quality in standing timber.** In: 13th International Union of Forest Research Organizations conference proceedings, Section 41. Rep. 4.:10. [Place of publication unknown]: [Publisher name unknown]: 10.

Discusses the possibility of selecting and breeding for birdseye maple and other figured grains.

**61.** Mroz, Glenn D.; Reed, David D.; Frayer, Warren E. 1990. **An evaluation of bole form and microsite conditions for birdseye maple growing in the western Upper Peninsula of Michigan.** Northern Journal of Applied Forestry. 7(1): 44-45.

Considers the possible association between birdseye sugar maple and local stand density. Comparisons of stand and site attributes for paired birdseye and nonbirdseye maples revealed that local density was significantly greater around the birdseye maples. There also were differences in some soil properties. Researchers also found evidence of the "Coke bottle" bole shape described by forest workers.

**62.** New Brunswick Forest Extension Service. 1997. **Traditional forest products (saw and veneer logs) around your woodlot, module 7, volume 2.** Fredericton, NB: New Brunswick Forest Extension Service: 8-15.

Describes the steps necessary to identify birdseye in sugar maple, and provides information on pricing and birdseye purchasers. Discusses the degree of quality and condition sought by buyers of veneer logs. Adaptation of Bragg and Stokke (1994).

**63.** Panshin, A.J.; deZeeuw, Carl. 1980. **Textbook of wood technology.** Volume 1, 4th ed. New York: McGraw-Hill: 46.

Describes the appearance of birdseye, its distribution within the bole, and its occurrence in hard and soft maples, birch, and white ash. Also discusses physical similarities with dimples in lodgepole pine.

**64.** Paul, Benson, H. 1955. **Importance of wood quality in tree breeding.** Journal of Forestry. 53(9): 659-661.

Mentions Pillow's (1930) work and suggests that preferential management for birdseye sugar maple may be possible if identification can be done early. See Robbins (1953) and Rudolf (1953).

**65.** Paul, Benson H. 1962. **Figures in wood: make their natural beauty pay.** Hitchcock's Woodworking Digest. August: 27-29.

Birdseye is most common in maple but also is found in honey locust.

**66.** Peattie, Donald Culross. 1963. **A natural history of trees of eastern and central NorthAmerica.** 2nd ed. New York: Bonanza Books: 456, 467.

Refers to a "bird's-eye maple era" when describing possible causes of birdseye in maple. Dismisses bird peck theory of birdseye formation and discusses suppressed bud theory. Cites occurrence of birdseye in red maple.

**67.** Pillow, Maxon Y. 1930. **"Bird's eyes" in maple are not due to dormant buds.** Hardwood Record. 68: 45-46.

Argues that anatomical differences between suppressed buds and birdseye figure in sugar maple rule out a causative link. Describes the structures of birdseyes and discusses the unpredictability of indentation distribution throughout an individual tree. Reports finding birdseye in maples as small as 3 (and possibly 1) inches in diameter.

**68.** Pillow, Maxon Y. 1955. **Detection of figured wood in standing trees.** Rep. 2034. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory. 8 p.

Indicates that birdseye can be readily identified from bark characteristics or blazing of stems.