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Nearly a Forest Paradise: Copper Basin Prior to 1800

by Edward A. Johnson*

In the last issue the author detailed the industrial destruction caused by mining and smelting operations in the Copper Basin region of southern Kentucky on the Georgia border, and the restoration efforts that have reclaimed much of the area's viability as a forest. In this article he describes what the Copper Basin ecosystem looked like prior to 1800.

Prior to the Euro-American alteration of the forest ecosystem at Copper Basin, it had been in equilibrium, whereby the forest canopy was composed of permanent canopy types that were principally unevenly aged or "all age" composed of species generated by gap phase reproduction.

The permanent composition of the Copper Basin and surrounding areas of canopy types were governed by factors of slope, elevation, aspect, soil quality, quantity, and moisture and canopy shade. Natural disturbance events of ice, snow, wind throw, floods and landslides produced natural gap phase regeneration as well as an uneven aged canopy. Also, the canopy types are composed of mixed species and rarely is there an abrupt change from one type to another except in ridges showing north and south aspects.

The original forest of the Copper Basin was wonderful in the extent,

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density, and quality of its trees. One hundred species of trees and shrubs grew in this area, an unusually large number for one locality. Except on dry ridges, the rate of tree growth was rapid.

The best soils as mentioned in R.F. Hemingway's 1912 description of the forest soil were found in coves and on protected slopes. On the slopes as the altitude increases, this rich, loamy cove soil changed gradually to a sandy loam at the same time becoming shallow and drier. As a rule, the soil on the upper slopes and ridges was poor and thin except in the gaps and on the broad flattened ridge tops.

The forest maintained a closed canopy, especially in cove and slope types, where occasionally the canopy

was broken, and the ground cover torn by windfalls or landslides.

Forest Service notes have documented that a yellow poplar has been measured with a 13 ft., diameter on a cove site lower slope. A white ash yielded five 16-foot logs and 150 feet to reach the crown canopy. On the nearby Ocoee Ranger District of the Cherokee National Forest, a five-foot dbh white pine was described with ten 16-foot logs to the crown canopy totaling 5,000 board feet. Hemlocks yielded five to seven logs to the tree crown with an age of 200 years.

The U.S. Department of Agriculture volume tables for important timber trees in the United States Eastern conifers compiled by E. N. Munns in 1925 lists a Hemlock tree 120 feet tall with a diameter of 50 inches, and 3,680 board feet in the tree. A White Pine measured 170 feet tall, 46 inches in diameter and yielded 5,060 board feet. A Shortleaf Pine was 90 feet tall, 20 inches in diameter and yielded 970 board feet.

Approximate percentage of the principal original forest canopy trees

Oak	55	Buckeye	2	Beech	1
Chestnut	18	Black Gum	2	Maple	1
Hemlock	5	Basswood	1	Pitch Pine	1
Hickory	5	Birch	1	Shortleaf Pine	1
Poplar	3	White Pine	1	All Others	<1

AND THEN SOME.....



*Profiles of woodland owners throughout the U.S. who have made significant personal commitments to private forest stewardship "and then some...."**

The principal crown canopy species of oaks were white, red, chestnut, and Spanish. These were also heavy producers of mast for wildlife. The best development of individual oaks was reached in the coves. The few trees that did overtop their neighbors usually attained large size and good quality. White and red oak and ash logs four feet in diameter were not uncommon.

Next in abundance was the chestnut constituting 18 percent of the forest. It was sparsely distributed on north facing slopes. Hemlock was a common tree on the well watered portions of north facing slopes. White pine was scattered over the entire basin. Yellow poplar had a wide distribution, but few timber trees of this species were found growing together.

Such places as deep dark coves where trees and undergrowth were found luxuriant white ash, cherry, yellow birch, basswood, as well as clumps of young oaks and chestnut. The inherent fertility of this original forest system repeatedly produced tall trees, sizeable diameter tree trunks, and fire-tolerant species along with a consistent and huge yearly mast crop and seed.

Botanist William Barton traveled through the Cherokee Area in the summer of 1776 and gives an account of the salient features of the surrounding Southern Appalachians. See Barton's report in: "accounting of open meadows, ponds and wet areas along head-water streams."

The Forest Ecosystem

Similar descriptions, not as detailed, cover the time of the DeSoto Expedition in 1541 until the end of the 1700s. The Copper Basin's original hardwood understory trees and shrubs may have included dogwood, sassafras, sourwood, serviceberry, red bud, witch hazel, vacciniums, spice bush, mountain laurel, doghobble, and rhododendron.

The understory growth in this forest canopy was generally open. There was some laurel in ravines and huckleberry on the ridges. The common woody vines were wild grapes, Virginia creeper, greenbrier, and poison ivy.

Of herbaceous, the more common may have included danthonia, tickrefoil, poverty grass, Solomons-seal, may apple, dittany, trilliums, black snake root, pussytoes, wild ginger, bellworts, asters, cinquefoil, and goldenrod. Of the wet swampy, or spring head sites, common herbaceous species are: golden thread, bunch-

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Bill Seybold

Bill Seybold died April 11, 2002 following a brief illness. He was 79. Seybold grew up in Indiana and served in the Navy in World War II as a pilot in the Pacific theater. He returned to his native Indiana and received a B.S. in forestry from Purdue University in 1950. He was a Wisconsin Department of Natural Resources (DNR) forester for 25 years, serving first in Wautoma then in Jefferson, where he retired. After retiring, he accepted a position with University of

Wisconsin-Forestry Extension working on a wood energy program. He also started a consulting forester business and practiced forest management on private lands for 20 years in southern Wisconsin.

Seybold and his wife, Liz, lived on a mostly wooded, 100-acre farm near Fort Atkinson for many years. They were the first landowners to donate the development rights to their property to the Jefferson County Land Trust.

A member of the Society of American Foresters and the Association of Consulting Foresters, Seybold joined the NWOA affiliate Wisconsin Woodland Owners Association (WWOA) in 1980 and served on the WWOA Board of Directors from 1981 to 1984 and 1988 to 1994. He was elected vice-president of the organization in 1983-84 and again in 1988-89.

In 1981, he was appointed executive director and secretary of WWOA. During his terms on the board, he chaired numerous committees, including the Membership Committee, the original Timber Sale Contract Committee, Education Committee, Legislation and Taxation Committees, and the Chapters Committee. He was the first chair of the Marketing Committee and remained its chairman for many years.

He was then appointed to the original WWOA Foundation Board of Directors in 1994, serving as vice president. His long experience as a WWOA member was essential in developing the foundation and in the acquisition and planning of the Seno Woodland Education Center in southern Wisconsin.

WWOA presented him the Distinguished Service Award in 1990-91 in recognition of his many contributions to the organization.

Bill Seybold was truly dedicated to forest management and to the proposition that private landowners can manage their woodlands for their own benefit and the benefit of society.

Dave Hall and Mary Ann Buenzow

* "And Then Some" is a tribute to the memory of W. Pat Jennings, Sr. The southwest Virginia native distinguished himself as a county sheriff, member of Congress and Clerk of the House of Representatives—but he always remained an active farmer and an advocate of the best of rural America. He was a valued counsel to several U.S. Presidents as well as the National Woodland Owners Association. A truly motivational speaker, one of his finest addresses was to the graduating class of Smyth County High School (which included one of his grandsons). The message: the secret of success is dedication to an ideal, giving it your very best.....and then some.



WEST

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Timber Companies Petition Interior Secretary Gale Norton

A coalition of timber companies recently filed a petition with Interior Secretary Gale Norton calling for a review of the northern spotted owl.

The American Forest Resource Council cites the **government's failure** to comply with the Endangered Species Act's requirement to review the status of threatened species every five years. The group points to new evidence indicating the owl is not in as much trouble as originally thought when it was listed in the early 1990s.

Norton has **60 days** from receipt of the petition to respond. If she does not, or if the group is not satisfied with that response, it would be legally empowered to file suit against the **government**. A **similar petition** for the marbled murrelet was filed in **January**.

Bush Administration Reviews Northwest Forest Plan

Dale **Bosworth**, Chief of the U.S. Forest Service, has told *The Oregonian* newspaper in Portland that the 1994 Clinton Northwest Forest Plan has proven cumbersome and costly, held back logging far short of projected levels and tied up the Forest **Service**.

"I don't think the public in general sees us as an organization that can do what **we** said we're going to **do**—**not** because we have bad people, but because we have good people tied up in an impossible **situation**," Bosworth said.

The Forest Service Chief says he has instructed regional heads of the Forest Service, U.S. Bureau of Land Management and other agencies to recommend updates to the plan. He said there's no deadline for fixing the forest plan, but **said** the Bush administration has made it a priority.

The Northwest Forest Plan, following a **1993** forest summit in Portland, was the first major attempt to manage a broad ecosystem across an entire region. It set aside millions of acres of federal forests and permitted logging of nearly one billion board feet of federal timber annually, about one quarter of the wood that was taken from federal lands in the Northwest during the late 1980s. But forest agencies have never come close to the one billion board foot target.

Water Quality Targets Reach 92% Compliance in Wyoming

The Forest Resources Association reports a 92 percent rate of compliance in meeting or exceeding water quality protection guidelines on timber harvest in the state, based on a 2000 and 2001 audit of Wyoming timber harvests.

A team of forest and **environmental** scientists evaluated more than 80 criteria on a sample of logging jobs during the **past two** summers. Wyoming has a voluntary BMP water quality standard.

Montana Logging Operations Allowed to Proceed

After two days of mediation between the U.S. Forest Service, forest industry representatives and **environmentalists**, who were clearly in the **drivers's** seat to a **court-ordered** injunction delaying salvage harvests on the **Bitterroot** National Forest, a settlement was reached that would allow harvests to proceed on 19 proposed salvage projects on the forest.

The released **projects** encompass about 29,300 acres with a projected yield of 60 million board feet. Nineteen other proposed sales were **dropped**.

FOREST PARADISE (Continued from page 13)

berry, wood **fern**, and cranberry.

In pure hemlock crown canopy stands undergrowth was **sparse** due to the low sunlight. No **understory** vegetation was particularly characteristic of this stand. Hemlock seedlings were sometimes present that germinated on well-decomposed litter, rotten wood, or moss mats. Hemlock has a long life span and remarkable ability to respond to release from suppression for up to 200 years.

The Southern Appalachian Forests, 1900-1901 by H.B. Ayeers and W. W. Ashe and examined by **Gifford** Pinchot contains an invaluable discussion on humus and litter, tree reproduction, second growth, undergrowth, and rate of growth. For **example** areas not impacted by the **sulfur fumes** or taken for fuel in the Copper Basin forests could have been managed for saw timber.

Leaf mold was thin on south slopes and lower hills. There was excellent ground cover on most north slopes, ravines, and in the deep coves and lower slopes having an east exposure. On ridges the litter is scant or light.

All trees reproduced well by seed, especially the oaks, chestnut, and yellow pines. The oaks and chestnut sprout freely from the stump.

Oak and chestnut sprouts formed the greater part of the second growth and adjacent to the heavily cut areas for cordwood needed in mining and residential uses. **Young** growth of other hardwood species was frequent wherever conditions were suitable.

The Beaver Program in the Copper Basin

The skin and pelt trade of the **1700s** illustrates the **biological** diversity of the original forest with the large number of species taken as well as the types of species traded and why many animals became extinct or rare. **It was** the development and production of the steel spring trap that eliminated beavers in the Copper Basin and Cherokee area, as well as in Maryland and up to Canada.

As a result the government-operated Tellico Block House ceased operations as a peltry and was moved west to the main Tennessee River. The beaver with its low head dams exerted a tremendous effect on the forest ecosystem with ponds, bogs, and marshes that opened the crown cover to an early succession of plants, water fowl, and animals associated with them. Regrowth would occur in **the** developed meadows.

