Indiana's Old Growth Forests

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There is very little recorded information about the original composition of Indiana forests before the white settlers came to the area. The notes and records of the early explorers are available but most of them deal with the region and not specifically with the State of Indiana as it is now defined. From these early accounts of the region it is apparent that a hardwood forest was present. According to Charles C. Deam, who had made a very thorough study of all the botanical records of the early explorers and botanists, common names of trees referred to by these early explorers, such as locust trees, could indicate either honey locust or black locust. Individual species of oak were not specifically recorded but grouped together. White oak was a term used for most of the species that belong to the white oak group as they are classified today. Consequently even those early records that contained accounts of the flora of Indiana can be regarded as being generally descriptive. Since the early travel routes of the explorers and early settlers were the water routes, many of them must have recorded the species which they observed along these water courses. Those species such as sycamore which could be easily identified, were recorded while those not so distinguishable were grouped. Probably the white oaks referred to were those that grew along the water courses such as swamp white oak. It appears that the early accounts prior to about 1800 were very general descriptions of the region and from most of them the composition of the forest in a specific locality cannot be ascertained.

Part of the early agricultural history of Indiana has been summarized by Latta (1). From this summary, it is evident that when the first settlers came into Indiana much of the land was covered with timber. Descriptions of the stands by the early writers can be summarized by stating that some of the forests were dense; some very dense with an understory of shrubs and vines; some parklike with large sized trees predominant; but every account indicates that the forests were predominately hardwoods. There are some records of pine being present, virginia pine in southern Indiana and white pine in the extreme northern part of the state. Cypress of the swamps in southwest Indiana and tamarack of the swamps in northern Indiana were also reported. Latta states that "the first white settlers found many large clearings in the forest in which crops were being grown by the Indian farmers. Some of these tracts had been abandoned, doubtless for more fertile areas or because of the removal of the tribe to other parts. . . Whenever necessary, partial clearings were made in the forest. The trees were deadened by bruising the bark with stone axes and by scorching the bases of girdled trees." Apparently the Indians must have done considerable forest land clearing in some sections of Indiana in order to grow crops to feed their people. Their many centuries of occupation must have had some influence on forest composition.

As the early settlers came into Indiana, the Indian practice of clearing away the forest was copied. The art of making maple sugar, commonly practiced by the Indians, was soon adopted by the white settlers. Thomas Ashe (2) (1806) in his travels in America states, "In the spring of the year, sugar camps extended through the whole country; and the persons employed give the trees such great and unnecessary wounds that their whole virtue runs out and they perish perhaps in a season. . . Persons of better regulated minds, tap the trees with an auger, insert a cane, draw off the liquor, and then stop up the flowing and the wound, by which means trees recover their vigor and afford fresh supplies in three to twelve years." While he does not specifically refer to Indiana in his travel account, the practice of making maple sugar was followed by both Indians and white settlers throughout the territory.

Although the first white men settled in Indiana in 1720, the era of active settlement occurred during the period of 1810-1870. In 1785, Congress authorized a systematic survey of the land and large tracts were acquired by colonization companies and wealthy private individuals. Land speculation was common but this did not discourage the settlers from coming to Indiana. By 1850, every county in the State had some settlers. The early settlers first established themselves along the river courses and along the Indian trails because they were the means of travel. After the completion of the canals, the "National Road," wagon roads, toll roads and the building of many railroads, settlement took place at a very rapid rate. The settlement of the interior of Indiana proceeded gradually from south to north. According to Latta, timberlands were first occupied. He records the following, "Notwithstanding the Herculean task of clearing the forest, the early settlers chose the higher timberlands. The reasons for this choice were: 1. Their previous experience. They were largely backwoodsmen with whom felling trees was an accomplished art. 2. The timber indicated the type and fertility of the soil, furnished material for fuel, building and fencing, and afforded shelter and food for both game and domesticated animals. 3. The prairie was thought unsuitable for settlement because of lack of wood and drinking water and its productiveness was not understood. 4. The treeless marshes and low-lying, rich, swamp land required immediate, extensive and expensive drainage for which the settlers had neither adequate knowledge, necessary funds, nor suitable materials. 5. After the deadening of the trees by the girdling of the trunks and the clearing out of the underbrush, the growing of crops, which was a prime necessity, could go on simultaneously with the gradual removal of the heavy timber."

The early pioneer used some timber for building his cabin, his barns and fences. There was little incentive for him to do other than dispose of the trees that he cut because until the advent of steam power and the sawmill, he had no market for his surplus timber. With the advent of the sawmill about 1860, there began extensive forest land clearing operations. With the development of farms, villages, towns, and cities, more hardwood timber was cut and used. The use of wood products increased as the production of agricultural products increased. Demands for wood to make all kinds of agricultural implements, wagons, barrels, boxes, and a host of other products caused the forests to be rapidly cut. Railroads, mines, factories, and many other new industries took large amounts of wood. During the period following the Civil War, thousands of sawmills operated in Indiana. Most of Indiana's forests were cut during the period of 1870-1910 and a large acreage of forest land was converted to agricultural crop use.

With the advent of the sawmill and with a large supply of merchantable timber, markets for hardwood timber increased. The development of the transportation system, especially the building and early operation of the railroads, required large amounts of timber. The railroads used large quantities of fuelwood prior to the use of coal. They were also the means by which the hardwood forest products were transported to markets. Fuelwood demands for home and industry, ties for both steam and electric railroads, and ties and props for the mining industry took out of the woods many of the smaller sized trees. Generally the oaks were the preferred species. The wagon stock industry, the basket factories, the furniture industry and numerous other wood using industries took only the highest quality timber.

Along with the removal of the forests and the clearing of land for agricultural crop use, timber was also cut from the forests which were later to be cleared or left in timber. These selective cuts consisted of the removal of the high quality black walnut, tulip poplar, black cherry and white oak. These selective cuts were followed by much heavier ones which usually removed all of the merchantable timber. These residual stands consisted of cull trees, small sized trees and species which were considered the least desirable for home or market use. Since many of these cut over forests were to be eventually converted to pasture or cropland, domestic livestock used them for pasture which helped to keep out the underbrush and natural regeneration of trees. Fire was commonly used to destroy the cut over forests.

One can conclude from this summary of Indiana's agricultural and industrial development during its settlement that the hardwood forest played an important part. The products that these old growth forests did produce have been recorded in the annals of Indiana's lumber production. According to Steer (3), "The earliest record of lumber production in the United States is contained in the census of 1809. With the exception of 1829, the record has been continued in each subsequent decennial census and annually since 1904." Prior to 1869 records were not separated by States but only the total hardwood lumber production was reported.

A record of hardwood lumber production in the United States and a summary of Indiana's hardwood lumber production are shown in Table 1. These figures show that the peak of the United States hardwood lumber production occurred in 1906 while the peak of Indiana's hardwood production occurred in 1899, when over one billion feet were cut. Indiana's percentage of the total cut has declined from 18 percent in 1869 to 2 percent in 1915. The present cut is still about 2 percent of the total.

It is apparent from the lumber production figures given in Table 1 that when the settlers first came into Indiana, they found a hardwood forest. The early production records show oak comprising approximately 80 percent of the total hardwood production in Indiana during the period 1869 to 1899 inclusive. Considering the merchantability and utilization standards of this early period there must have been many oak trees over 24 inches in diameter present in order to have production of oak lumber in the amounts reported by the sawmills. The records of lumber cut are very conservative because some operating sawmills did not report their cut. Even today the census figures on lumber cut do not include all of the operating sawmills.

The estimated total cut of hardwood sawtimber during the period of 1869 to 1903 inclusive was approximately 30 billion board feet. This means an average yearly cut of about 800 million board feet of which three-fourths were listed as oak. Considering the productive capacity of the forest lands of Indiana and the total acreage of forests from which the hardwood lumber has come, these old growth stands must have contained volumes ranging from 25 to 50 thousand board feet per acre. Then with the record of cut being such a high percentage of oak, it is easy to conceive that these old growth forests were predominately oak with numerous hardwood associates.

Since the record of species cut was incomplete until 1904, it is probable that beech was included with other species prior to 1904. The records do show the volume of maple cut and its percentage of the total cut varied from 1 to 7 percent. During the period of 1869 to 1899 inclusive, tulip poplar lumber production was two to three times that of maple.

The record of lumber production shown in Table 2 illustrates the continuing importance of oak and the increasing volume of beech that was cut during the period 1904-1915 inclusive. The total production for this period shows oak comprising 45% of the total cut, beech 13%, maple 8%, elm 7%, yellow poplar 5% and the other six species the remaining 22%.

Considering the entire record of Indiana's part in the hardwood lumber production, it is estimated that since cutting began approximately 50 billion board feet of hardwood timber have been cut from Indiana's forests. Of this total reported cut nearly two-thirds of the volume was oak. While beech and maple do enter into the production picture, their total contribution to Indiana's lumber production is comparatively small. These figures would indicate that beech and maple constituted part of the old growth forests but the "beech-maple" association must have occupied a minor position or must have been very much restricted in area.

The lumber production records for Indiana have their counterpart in the records available for Ohio, Illinois and Kentucky. In these states oak lumber production was similar to that of Indiana and the other hardwood species occupied similar positions in the lumber production records.

So it is probable that when the early ecologists came into Indiana and our neighboring states they did see residual stands in which beech and maple could easily have been prominent. The lumber production records clearly indicate that the oaks were the favored trees to be cut and hence during the period of 1880 to 1910 one's observations would put beech and perhaps maple into the ecological picture.

As a forester, I would conclude from the lumber production records, from settlement history and from the composition of the forests that is revealed in the early records that Indiana's old growth forests were predominately oak.

TABLE 1

Year	Millions of Board Feet	Percent of Total Cut in Indiana	Number of Sawmills in Indiana that Reported Production
1809	56		
1819	81		
1829	148		
1839	329		
1849	1,317		
1859	2,227		
1869	3,503	18	
1879	4,791	18	
1889	7,014	12	1,324
†1899	8,706	12	1,159
1904	10,462	5	718
*1906	11,110	4	820
1910	10,471	4	1,044
1915	7,526	2	354

Hardwood Lumber Production in the United States

* Peak of production in United States.

† Peak of production in Indiana.

Hardwood Lumber Production in Indiana

Millions of Board Feet

Year	Oak	Maple	Beech	Yellow Poplar	Black Walnut	Red Gum	Others	Total
1869	415	30		78		2	105	630
1879	690	20		60		5	87	862
1889	690	25		70		10	83	878
1899	682	27		56	10	34	223	1,032
1905	294	16	31	18	9	12	1	381
1915	80	16	31	6	11	8	36	198
1925	65	29	20	5	16	2	41	178
1935	42	15	8	3	3	1	13	85
1945	64	13	17	5		3	44	146

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Indiana Hardwood Lumber Production

Millions of Board Feet

Year	Oak	Elm	Maple	Yellow Poplar	Hickory	Ash	Red Gum	Black Walnut	Sycamore	Basswood	Beech	Others	Total
1904	294	40	36	31	29	26	22	80	8	Ð	1	61	560
1905	176	25	16	18	15	13	13	6	1	7	31	58	382
1906	221	35	29	25	22	20	21	13	1	8	31	21	446
1907	226	38	30	28	24	19	22	10	11	8	79	6	504
1908	164	26	32	20	21	20	19	80	10	6	70	12	411
1909	228	40	44	29	23	23	24	8	11	14	66	12	555
1910	174	26	32	20	22	20	13	ъ	00	6	84	6	422
1911	147	20	30	18	16	19	12	10	7	L.	64	8	358
1912	166	27	33	18	19	22	14	9	8	7	70	6	399
1913	151	21	29	13	13	15	11	10	အ	9	55	9	333
1914	132	22	29	11	10	11	6	£	4	ß	52	00	298
1915	80	15	16	9	7	11	80	11	က	4	31	9	198
Totals .	2159	335	356	237	221	219	188	103	73			219	4866

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