

American Bottom Ecoregion 1: Middle Mississippi River

Overview

The American Bottom Ecoregion consists of the Middle Mississippi River corridor from river mile 117 to river mile 200 or roughly the confluence with the Kaskaskia River to Lock and Dam 26 at Alton, IL. This ecoregion includes Reaches 1 and 2 of the Middle Mississippi River corridor as defined in the Middle Mississippi River Partnership Plan which was revised in 2007.

The entire Ecoregion is mostly protected from flooding by a levee and drainage canal system. The area across the river from St. Louis, Missouri is industrial and urban, but the many swamps and lakes are reminders of the riparian nature of the area. The southern portion of the reach is more agricultural than the northern region, although some agricultural land still exists in the northern part. The American Bottom Ecoregion is the most heavily developed of the three ecoregions. This Ecoregion is within the Mississippi Flyway, used by migrating birds, and has the greatest concentration of bird species in Illinois.

The flood plain is bounded on the east by a nearly continuous long bluff line. The Mississippi River bounds the American Bottom on its west and the river abuts the bluff line on the Missouri side. Portions of St. Clair and Madison Counties, Illinois and St. Louis, St. Louis City and Jefferson Counties, Missouri are in Reach 1. Reach 2 contains portions of Jefferson and Ste. Genevieve Counties in Missouri and Monroe and Randolph Counties in Illinois. The maximum width of the Ecoregion is about 10 miles in the north and about 2-3 miles throughout most of its southern extent. The elevation of the floodplain varies from 419 feet above mean sea level (amsl) in the northern portion to about 376 feet amsl in the southern portion.

The American Bottom was historically the most diverse of the three ecoregions. A large part of its presettlement habitat was in various prairie ecotypes. The American Bottom has also lost the greatest amount of habitat at 82%. Most of this lost habitat consisted of the prairie communities, though other habitat types have been severely affected as well. Public lands are concentrated in the north. Some major public lands include Horseshoe Lake, Frank Holten State Park, and Columbia Bottoms Conservation Area. Major tributaries influencing the region include the Missouri, Illinois, and to a lesser extent Meramec Rivers.

Large populations are concentrated in the north in cities such as St. Louis and East St. Louis. The Missouri counties of St. Louis and Jefferson and the Illinois counties of Madison and St. Clair also have large suburban populations. Historically, American Indians settled near Cahokia, where they built mounds. A large part of its presettlement habitat was in various prairie ecotypes.

The ecoregion represents 47% of the total land area of the corridor and contains 257,529 acres. It has the highest acreage and percentage of developed land which includes the residential, commercial, and industrial Metro-East area. Agriculture is also predominant in this region. In 2000, 48% or 125,722 acres of the region was in agricultural land use. The region originally contained 94% of the native prairie in the Middle Mississippi Corridor or 73,600 acres.

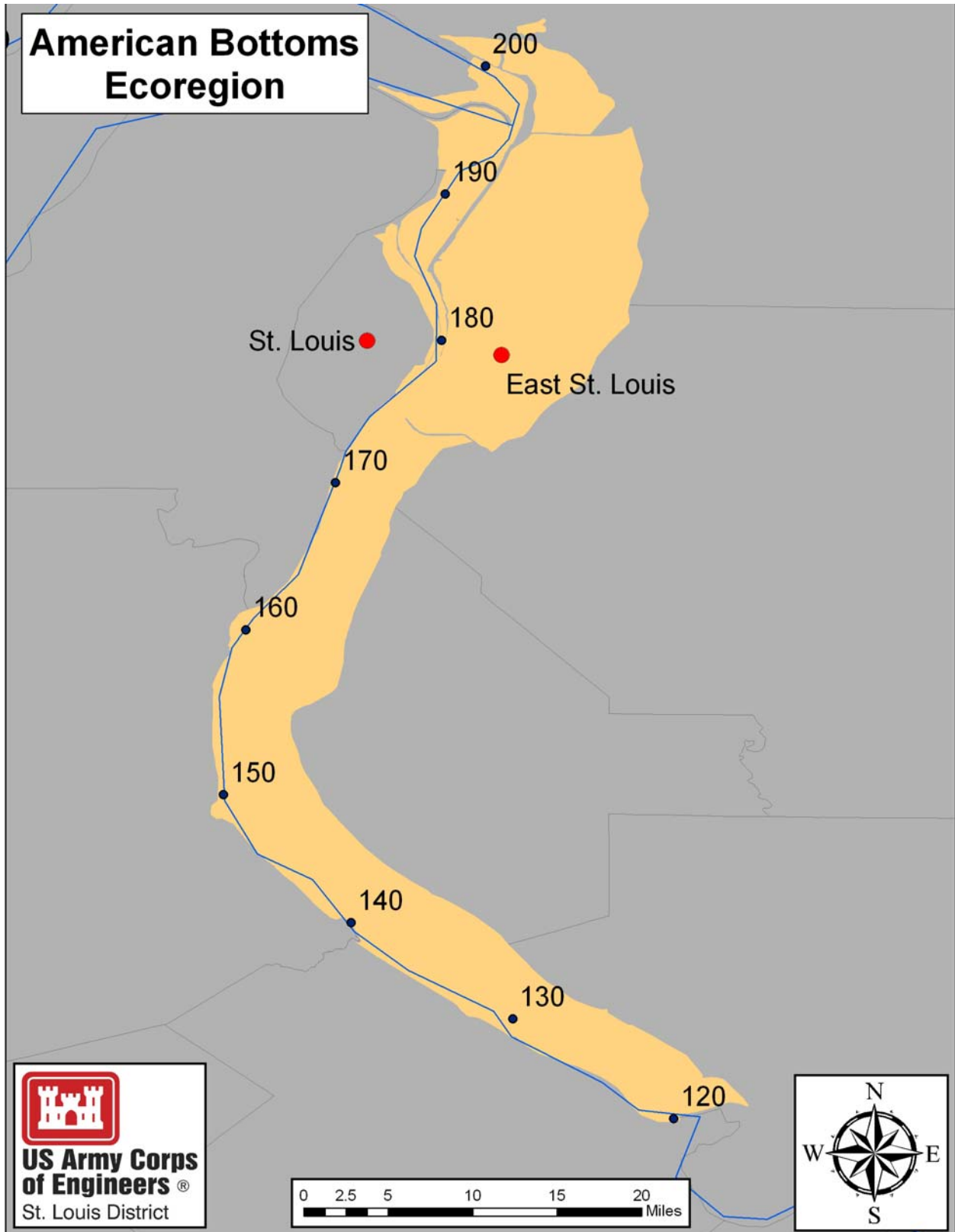


Figure ER1-1: Location of American Bottom Ecoregion

Presettlement Land Use in the Early 1800s

A Hydrogeomorphic (HGM) analysis (Heitmeyer, 2008) was used to more specifically and scientifically identify pre-European settlement vegetation types in the corridor. This approach uses information on hydrology, geomorphology, soils, and topography to identify types of vegetation that would have been present in the corridor in the early 1800s. This data provides information that can be used to determine land use trends and future restoration potential. The following was the presettlement vegetation present in this ecoregion:

Table ER1-1: Presettlement Vegetation in American Bottom Ecoregion

Land Type	Acres	Percent
Bottomland Hardwood	0.00	0.00%
Bottomland Hardwood Ridge	0.00	0.00%
Bottomland Lake	16,801.53	6.51%
Bottomland Prairie Ridge	4,777.21	1.85%
Bottomland Prairie Swale	34,440.48	13.35%
Bottomland Prairie Urban	16,071.10	6.23%
Floodplain Forest Ridge	8,526.31	3.31%
Floodplain Forest Swale	32,694.18	12.67%
Floodplain Forest Urban	7,286.03	2.82%
Other	22,066.01	8.55%
Riverfront Forest	52,754.96	20.45%
Slope Forest	15,342.26	5.95%
Slope Savanna	9,938.69	3.85%
Terrace Forest	0.00	0.00%
Terrace Prairie	18,314.68	7.10%
Water	18,945.39	7.34%
Total	257,958.81	100.00%

Forests originally comprised 116,603 acres in the region or 45% of the area. Prairies originally comprised 73,603 acres in the region or 29% of the area. Water and lakes were present on 35,746 acres or 14% of the area. This region contained the vast majority (94%) of the original native prairie in the corridor. Most of this original prairie has been converted to agricultural or other land uses and only a small area of native grass remains today.

Table ER1-2: Changes in Land Use from 1800s to 2000 in American Bottom Ecoregion

Land Cover	Land Use Early 1800s (Acres) ¹	Land Cover 1989 (Acres)	Land Cover 2000 (Acres)	Net Land Cover Change (Acres)	
				1800 to 1989 (Acres) ¹	1989 to 2000 (Acres)
Agriculture	0.00	147,899.66	125,722.29	+147,899.66	-22,177.37
Grasses/Forbs	49,101.68	12,555.61	9,429.12	-47,846.07	-3,126.49
Forest	116,603.73	20,856.75	30,881.79	-95,746.98	+10,025.04
Wetlands/Marsh ²	34,440.48	779.87	8,495.50	-33,660.61	+7,715.63
Sand/Mud ³	0.00	1,760.86	2,716.30	+1,760.86	+955.44
Water	35,746.92	25,648.03	27,227.03	-10,098.89	+1,579.00
Developed	0.00	46,130.29	50,398.48	+46,130.29	-4,268.19
Unknown ⁴	22,066.01	2,327.74	2,658.21	N/A	N/A
Total⁵	257,958.81	257,958.81	257,528.71	-	-

¹ Land use 1800 categories do not match 1989 and 2000 land cover categories exactly. Some estimations were made.

² Land use 1800 categories did not have wetlands/marsh. It was assumed bottomland prairie swale fit this description and was used instead.

³ “Sand/Mud” category does not exist in 1800 land cover categories. It is most likely represented by open water in 1800 categories.

⁴ “Unknown” category is much higher for 1800 because the analysis did not cover as much area as the other two land cover data sets.

⁵ Land cover 2000 total acres is lower from GIS calculation errors.

Remnant Habitat

Some areas of presettlement vegetation still exist today in the corridor. The HGM report (Heitmeyer, 2008) outlined maps of the current locations and extent of remnant presettlement vegetation using the same factors as listed above along with comparison to existing vegetation. The following table lists the extent of remnant presettlement vegetation that still existed in 2008. The most predominant is the 22,274 acres of riverfront forest that still remains of the original 52,755 acres.

Table ER1-3: Remnant Vegetation in American Bottom Ecoregion

Remnant Vegetation	Acres	Percent
Bottomland Hardwood	0.00	0.00%
Bottomland Hardwood Ridge	0.00	0.00%
Bottomland Lake	7,449.90	18.59%
Bottomland Prairie Ridge	360.19	0.90%
Bottomland Prairie Swale	3,949.41	9.85%
Bottomland Prairie Urban	446.08	1.11%
Floodplain Forest Ridge	786.88	1.96%
Floodplain Forest Swale	2,763.58	6.89%
Floodplain Forest Urban	338.37	0.84%
Other	0.00	0.00%
Riverfront Forest	22,274.26	55.57%
Slope Forest	981.24	2.45%
Slope Savanna	133.43	0.33%
Terrace Forest	0.00	0.00%
Terrace Mesic Prairie	600.40	1.50%
Total	40,083.74	100.00%

The following table outlines the land uses in the ecoregion in 1989.

Table ER1-4: 1989 Land Use in American Bottom Ecoregion

Class	Acres	Percent
Agriculture	147,899.66	57.33%
Developed	46,130.29	17.88%
Forest	20,856.75	8.09%
Grass/Forbs	12,555.61	4.87%
Marsh	779.87	0.30%
Open Water	25,648.03	9.94%
Sand/Mud	1,760.86	0.68%
Unknown	2,327.74	0.90%
Total	257,958.80	100.00%

Agricultural land increased significantly from presettlement until 1989 as did developed land. Large acreages for forest and prairie lands were lost to development and agriculture during this same time period.

The following represents the land use in the ecoregion in the year 2000:

Table ER1-5: 2000 Land Cover in American Bottom Ecoregion

Class	Acres	Percent
Agriculture	125,722.29	48.82%
Developed	50,398.47	19.57%
Forest	30,881.79	11.99%
Grass/Forbs	9,429.12	3.66%
Marsh	8,495.50	3.30%
Open Water	27,227.03	10.57%
Sand/Mud	2,716.30	1.05%
Unknown	2,658.21	1.03%
Total	257,528.71	100.00%

Almost half of this ecoregion has been converted to agricultural use. Acreages of forest and developed land increased from 1989 to 2000. Acreages of agricultural and prairie land have decreased from 1989 to 2000. This ecoregion contains 42% of the agricultural land present in the entire corridor.

Table ER1-6: Farmland Type in American Bottom Ecoregion

Type	Acres	Percent
All areas are prime farmland	60,382.27	23.45%
Farmland of statewide importance	1,191.85	0.46%
Not prime farmland	125,844.06	48.86%
Prime farmland if drained	23,253.14	9.03%
Prime farmland if protected	17,990.90	6.99%
Water	28,879.55	11.21%
Total	257,541.77	100.00%

About 61,500 acres of the region is considered prime farmland or farmland of statewide importance or about 24% of the region. About 167,000 acres (65% of the region) are considered non-prime or conditionally prime based on drainage or flooding frequency.

Table ER1-7: Land Use and Flooding Frequency in American Bottom

Land Use and Flooding Frequency	Acres	Percent
Agriculture, Frequent	11,806.45	4.58%
Agriculture, Not Frequent	113,829.75	44.20%
Non-Agriculture, Frequent	23,404.36	9.09%
Non-Agriculture, Not Frequent	75,265.03	29.23%
Unknown, Frequent	336.33	0.13%
Unknown, Not Frequent	2,318.33	0.90%
Water	30,566.58	11.87%
Total	257,526.83	100.00%

Agriculture

Agriculture is the dominant land use in the region with 125,722 acres in the year 2000 covering almost 49% of the area. Agricultural land use is more prominent in the southern portion of the region. Agricultural lands decreased from 1989 to 2000 by almost 22,000 acres. Much of these areas were converted to forests and prairies along with some urban development.

Forest

This region had 116,603 acres of forest in the early 1800s covering about 45% of the area. Forest vegetation declined just under 100,000 acres from the early 1800s to the year 1989; a decrease from 45% of the region to 8% of the region. Forests have increased by a little over 4,000 acres from 1989 to 2000.

Grass/Forbs

Prairie vegetation originally comprised 73,603 acres in the region or 29% of the area. This was the highest acreage and percentage of the three ecoregions in the corridor. By 1989 the percentage was down to less than 5% and by 2000 less than 4% was in grass/forbs.

Water and Wetlands

Based on the 1989 land cover data this ecoregion contained 26,427 acres of water and wetlands (marsh). By 2000 the land use data indicated 35,722 acres of water and wetlands or an increase of over 9,000 acres in eleven years. Based on the 2000 land cover data this ecoregion contained about 41% of all the wetlands and water in the MMRP corridor.

Urban Lands

This ecoregion has more acreage and percentage of urban land than any other ecoregion in the corridor. Of the 55,675 acres of developed land in the corridor, 50,398 acres (or 90%) is located in this ecoregion. Developed land increased in the region by over 4,200 acres from 1989 to 2000. In 2000 almost 20% of the land in the region was considered urban developed land. Urban developments continue to convert agricultural, forest, grassland, and wetlands in the region.

Public Lands

The American Bottom ecoregion contains 18,320 acres of public land which is about 30% of all the public land in the Middle Mississippi River corridor. Public land represents only 7% of the total land area in the ecoregion. The vast majority of the land in the region is in private ownership.