



4.12 Wetlands

Wetlands are considered “waters of the U.S.” and are described in the *Corps of Engineers Wetland Delineation Manual (1987)*. Wetland boundaries are delineated using three criteria: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology. For an area to be identified as a wetland, it must display all three of these criteria.

Wetlands cover about 813,000 acres (4% - 5% of total area) of Indiana. Wetlands are an important natural resource because they support rich biological communities. Because of their functions and values, there are several federal and state laws that regulate activities that affect wetlands. The major laws protecting wetlands include the Federal Clean Water Act, the River and Harbors Act and Indiana’s Flood Control Act.

Wetland ecosystems provide a transition zone from aquatic habitat to upland habitat. There are many different types of wetlands. The four types of wetlands identified from the National Wetlands Inventory (NWI) maps for the DEIS include emergent wetlands, scrub/shrub wetlands, forested wetlands and aquatic bed wetlands. Unconsolidated bottom areas are identified on the NWI maps, but rarely meet all three wetland criteria. Wetland areas were calculated using NWI maps for comparison purposes in the DEIS. Wetlands within the Preferred Alternative G-Es, were delineated using the guidelines in the *Corps of Engineers Wetland Delineation Manual (1987)*. Detailed results of this delineation can be found in the “Waters of the U.S.” Verification Report for the US 31 Improvement Project (Plymouth to South Bend), DRAFT Revised on May 2, 2005.

Wetlands represent about 4% - 5% of Indiana; however, they harbor an unusually large concentration of our wildlife and plants. “For example, 900 species of wildlife in the United States require wetland habitats at some stage in their life cycle, with an even greater number using wetlands periodically. Representatives from almost all avian groups use wetlands to some extent and one-third of North American bird species rely directly on wetlands for some resource.” (Hammer, 1992)

Due to the diversity of habitats possible in these transition environments, the Nation’s wetlands are estimated to contain 190 species of amphibians, 270 species of birds and over 5,000 species of plants. Many wetlands are identified as critical habitats under provisions of the Endangered Species Act, with 26% of the plants and 45% of the animals listed as threatened or endangered either directly or indirectly dependent on wetlands for survival (Hammer, 1992).

Wetland, habitat and trophic guilds were developed for all reasonable resident and migrant species occurring in Indiana based on a literature review and on field experience (Appendix G). This database of mammals, birds, reptiles, amphibians and fishes occurring in Indiana includes a sample size of 606 species based on guild rankings. Of these 606 vertebrates, approximately 73% are fully or partially wetland dependent. In addition, 93 of 120 (78%) of the threatened and endangered species (TES) (including watch list species) are wetland dependent. Such high occurrences of TES species for wetlands show the value and importance of wetland habitats to Indiana’s biota.

Wetlands along riverbanks (riparian wetlands) are receiving more attention because of their valuable role in helping to stabilize banks. One of the benefits of riparian wetlands is that they act as natural flood control or buffering for downstream areas by slowing the flow of floodwater and reducing peak flows on main rivers (Mitch and Gooselink, 1986).

Some wetlands may function as groundwater recharge areas, allowing water to seep slowly into and replenish underlying aquifers. Other wetlands represent discharge areas for surfacing groundwaters. Both may occur within close proximity depending upon local and regional patterns of ground water distribution (Hammer, 1992). The following is a short description of different types of wetlands that were identified in this FEIS.



Generally, most wetlands systems within this project are categorized as palustrine, and thus not associated with a river or lake system, but rather dependent on groundwater or precipitation runoff to sustain their hydrologic regime. Many of the wetland impacts in this project are located north of Lakeville. Where possible, large wetland complexes were avoided or the impacts minimized by impacting only the edges of these complexes and not going directly through the core.

Emergent Wetlands

Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. (Figure 4.12.43) Emergent wetlands are also known as marshes. The vegetation in emergent wetlands is present for most of the growing season in most years. (Cowardin, 1979) Emergent wetlands are usually dominated by perennial plants. All water regimes are included except subtidal and irregularly exposed. Bogs and fens are two of the high quality emergent wetlands that occur as thick peat deposits in old lake basins or as blankets across the landscape (USGS, 1998). These two wetlands are primarily found in northern Indiana. Plants characteristic of emergent wetlands include soft-stem bulrush, carex, spikerush and arrowhead.



Figure 4.12.43: Emergent Wetlands

Scrub/Shrub Wetlands

Scrub/Shrub wetland areas are dominated by woody vegetation less than six meters (20 feet) tall. (Figure 4.12.44) The species include shrubs, young trees and trees or shrubs that are small or stunted because of environmental conditions (Cowardin, 1979). All water regimes, except subtidal are included (USGS, 1998). Many of the scrub/shrub wetlands in the Midwest develop into forested wetlands. Plants characteristic of scrub/shrub wetlands include willows, buttonbush, rose mallow and spicebush.



Figure 4.12.44: Scrub/Shrub Wetlands

Forested Wetlands

Forested wetlands are wetlands that are characterized by woody vegetation that is six meters (20 feet) tall or taller (Figure 4.12.45). Forested wetlands are the most common wetland type in Indiana where moisture is abundant particularly along rivers and streams (Cowardin, 1979). Forested wetlands normally possess an upper canopy of trees, an understory of young trees and shrubs, and a herbaceous ground layer (USGS, 1998). Plants characteristic of forested wetlands include silver maple, sycamore, cottonwood, and pin oak.



Figure 4.12.45: Forested Wetlands



Aquatic Bed Wetlands

Aquatic bed wetlands include wetlands and deepwater habitats dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years (USGS, 1998). Aquatic bed wetlands make up only a small percentage of wetland impacts associated with the US 31 project.

Farmed Wetlands

Farmed wetlands are defined in the United States Department of Agriculture (USDA) National Food Security Act Manual, 3rd Edition, September 2000 (NFSAM), as “Wetlands that were drained, dredged, filled, leveled or otherwise manipulated before December 23, 1985, for the purpose of, or to have the effect of, making the production of an agricultural commodity possible, and continue to meet specific wetland hydrology criteria.”

Unconsolidated Bottom Areas

These areas include all wetlands and deepwater habitats that have at least 25% or greater cover of particulates smaller than stones, and a vegetative cover of less than 30% (Cowardin, 1979). These areas usually have permanent water at least six feet deep or deeper most of the year and do not support hydrophytic vegetation. Unconsolidated bottom wetlands were mapped as part of the National Wetland Inventory, but rarely meet the Corp’s technical definition of a wetland due to the absence of the vegetation parameter. Ponds and lakes are examples of unconsolidated bottom wetlands.