Products

A variety of products were produced for this project. In addition to this report, 1:24,000 scale hard copy final paper maps were prepared. These consist of the wetland, riparian and land use/land cover delineations overlayed on a copy of the USGS topographic map for each quadrangle (Figure 3). Final maps are available from the Regional Map Distribution Center in Brookings, South Dakota at 605-688-5890. Arc Info digital data consisting of a wetland, riparian and land use/land cover layer were produced from these maps for use in geographical information systems. Digital data can be downloaded through the NWI home page on the Internet at http://www.nwi.fws.gov. Polygon acreage, linear miles and point summaries for all wetland, riparian and upland features were also produced for each of the fourteen quads in the study area. A variety of ancillary products such as color-coded maps and plots may be produced using the digital data in conjunction with a GIS.

Results

Polygon features are measured during the digitization process to obtain areas in acres. Linear and point data are buffered during area calculations and included in the acreage figures in the text to make them as accurate as possible. Linear distances are listed in miles on the feature summaries and were converted to acreages on the assumption that they have an average width of 10 feet. Points are listed by frequency or number and were converted to acreages assuming each point averages 0.1 acre.

Although linear and point data may seem minor in comparison to polygon data they are still a significant portion of the overall data in the Yellowstone River study area. For example, there are 167 miles or 203 acres of roads that were mapped as linear features in the study area (Appendix F).

Riverine and Palustrine Wetlands

The National Wetlands Inventory identified and mapped 55 categories of wetlands and deepwater habitats occupying 7,750 acres in the Yellowstone River project area (Appendix D). These figures include buffered linear and point data. All wetlands identified were classified in two systems, riverine and palustrine. Riverine wetlands and deepwater habitats (including sand and gravel bars) make up the largest percentage of wetland habitats and cover 4,198 acres or 54 percent of all wetlands within the project area. Rivers and streams in this area are either intermittent with water flowing only a part of the year, or perennial where some water flows throughout the year. The majority of perennial rivers and streams in the project area are upper perennial with the Yellowstone River itself comprising the largest feature of this type. Ninety seven percent by area of streams in the project area are upper perennial. Unconsolidated

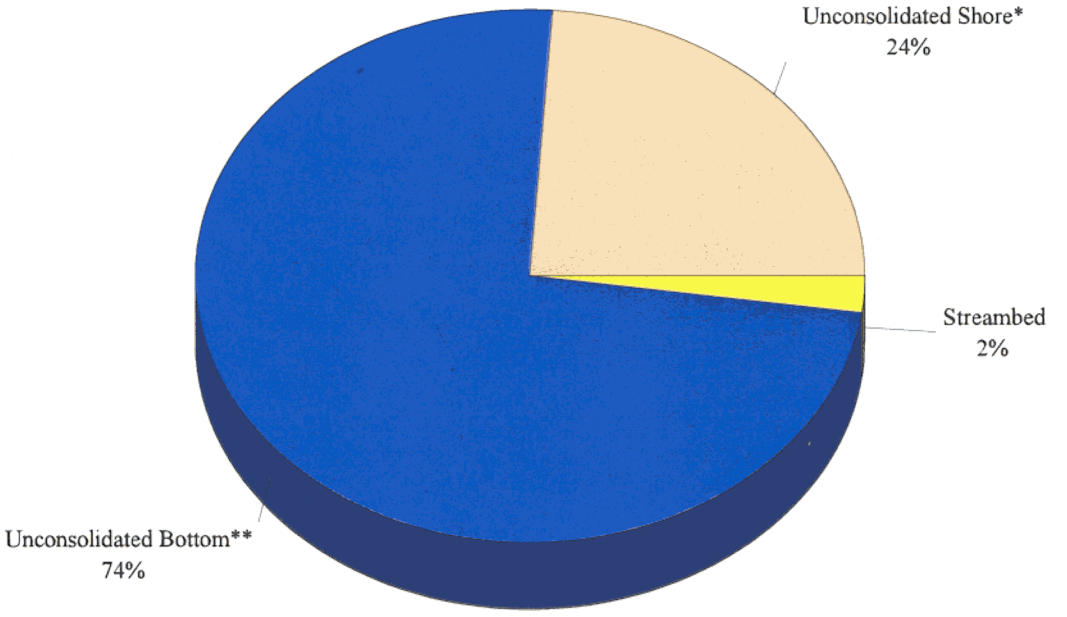

Figure 5. Open water dominates the riverine system although there is a significant amount of sand and gravel bars. *Includes sand and gravel bars. **Includes open water and aquatic bed.

shore (gravel bars) makes up 24 percent of all riverine classes at 1,010 acres with unconsolidated bottom and aquatic bed (open water), which generally relates to the main channel, accounting for 74 percent or 3,122 acres. The streambed class, found only within the intermittent riverine sub-system, makes up the remaining 2 percent at 66 acres (Figure 5).

The remaining 46 percent or 3,552 acres of wetland habitat are palustrine wetlands, of which 1,675 acres (47 percent) are emergent or herbaceous, 1,042 acres (29 percent) are scrub/shrub and 664 acres (19 percent) are forested wetlands. The remaining 171 acres (5 percent) of palustrine wetlands are either non-vegetated (unconsolidated bottom or shore) or aquatic bed (Figure 6). Vegetated wetlands along streams and rivers are classified as palustrine even though the stream hydrology may have created them and sustains them. Most of the forested wetlands, a high percentage of the scrub/shrub wetlands and a significant portion of the emergent wetlands are related directly to river hydrology.

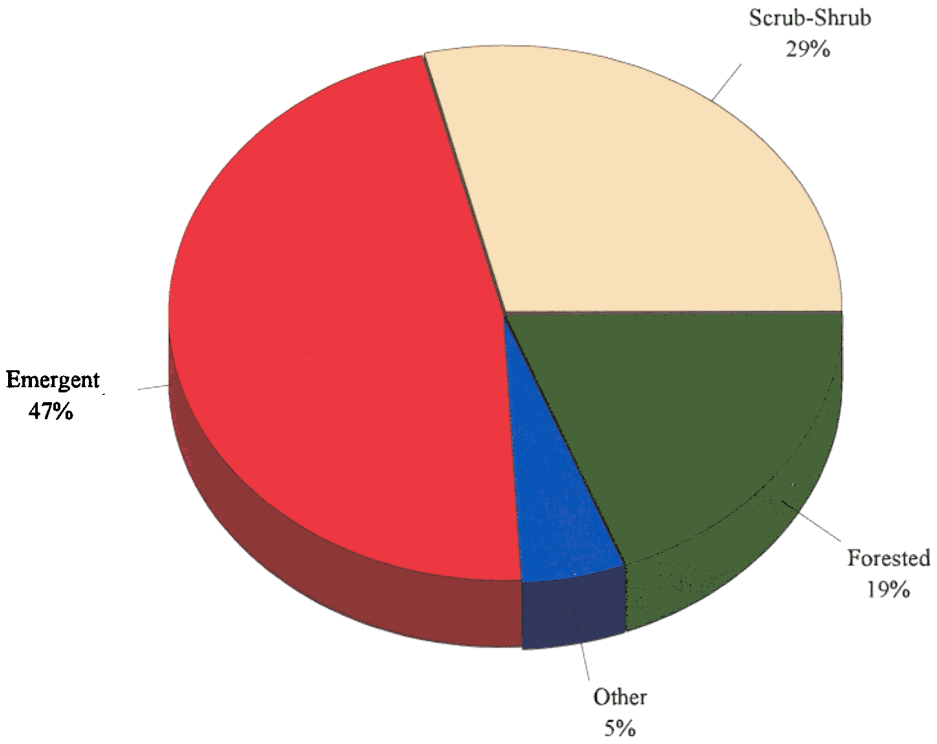

Figure 6. Vegetated wetlands are distributed throughout the palustrine system with the emergent class the most dominant. Small percentages of unconsolidated bottom, unconsolidated shore, and aquatic bed constitute the "Other" category.

Riparian Habitat

There were 18 categories of riparian habitat identified and mapped which total 3,078 acres within the project area (Appendix E). This includes buffered linear data and also mixed wetland/riparian habitats which were mapped together because of scale limitations (for example: R4SBA-Rp1Fo linear features). This example is an illustration of a narrow linear where the riparian forested is so inter-mixed with the riverine streambed that it is impossible to delineate them separately. Rather than delineate areas such as these as either wetland or riparian they were delineated as both to obtain as much information as possible.

Virtually all (greater than 99 percent) of the riparian habitat in the study area is lotic or related to flowing water, the vast majority attributable to the Yellowstone River. Riparian forested habitat comprises the largest riparian category at 2,621 acres or 85 percent of all riparian habitat. Riparian scrub/shrub habitat totaled 92 acres or 3 percent. Riparian emergent habitat (herbaceous communities) totaled 365 acres or 12 percent (Figure 7).

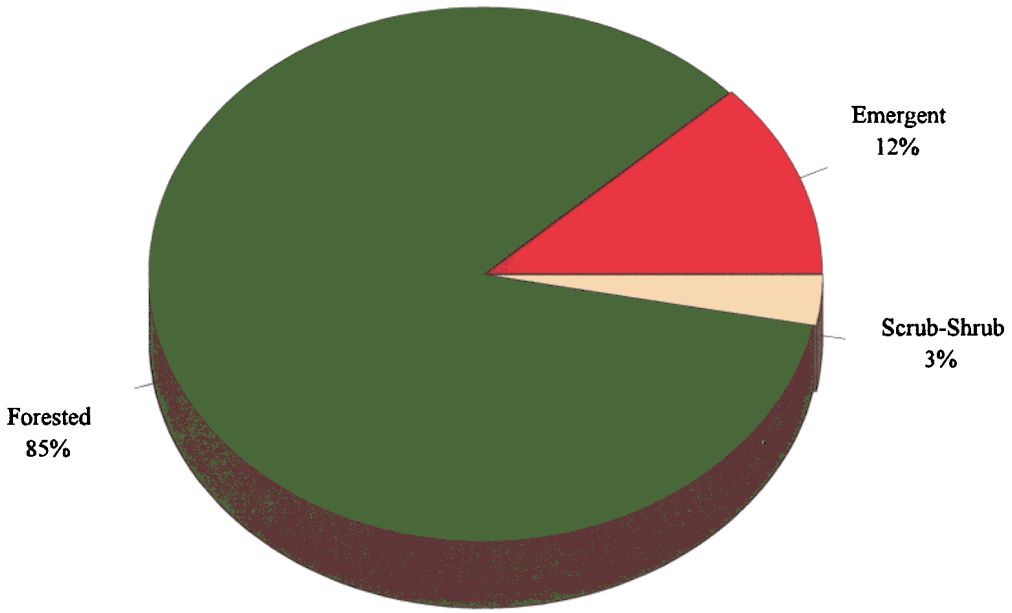

Figure 7. Forested habitat dominates the riparian system within the Yellowstone River study area.

Upland

Five level one and nineteen level two categories of upland land use and land cover totaling 43,932 acres were identified and mapped in the project area. This figure includes buffered linears such as roads but no point data (Appendix F). Rangeland comprises the largest level one category at 22,023 acres or 50 percent of all upland within the study area. Agricultural land is the second largest level one category at 15,537 acres or 35 percent. Urban or built-up land covers 5,494 acres or 13 percent of the study area. The remaining 2 percent, 878 acres, is divided between barren land (mostly gravel pits and rock outcrops), and forest land (Figure 8).

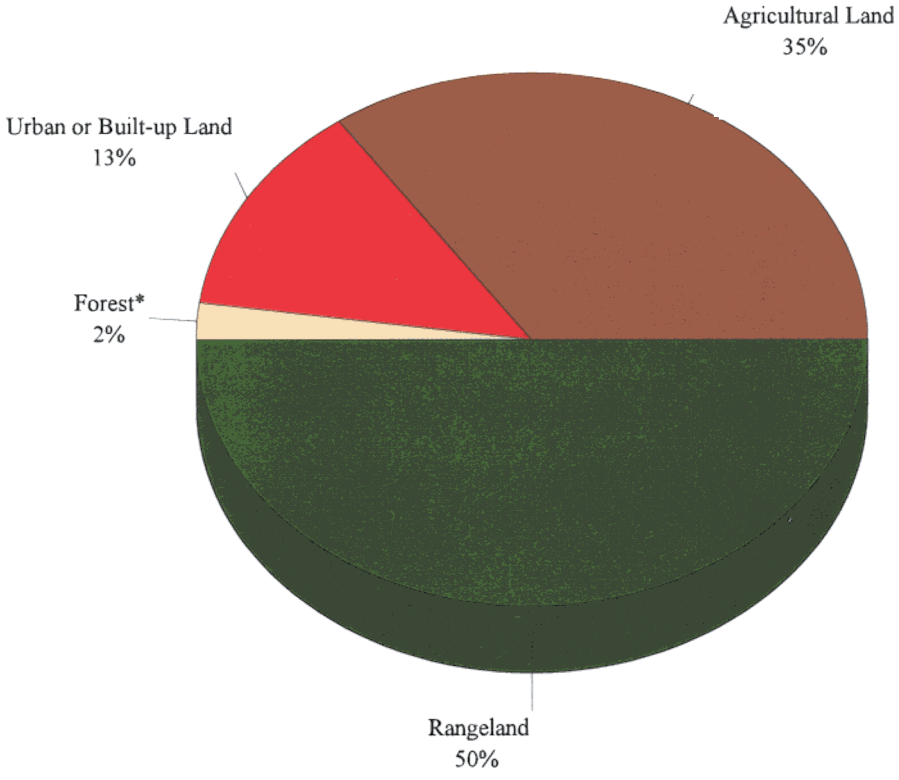

Figure 8. Rangeland dominates the upland land use/land cover within the project area with agricultural and urban land constituting most of the remainder.
*Includes a small percentage of barren land.

The largest percentage of rangeland is herbaceous rangeland (31) at 94 percent, the remaining 6 percent being shrub and brush rangeland. Ninety-three percent of agricultural land is the level two category of cropland and pasture (21). The majority of urban acreage is composed of transportation corridors (14) and towns such as Livingston (16 or mixed urban).