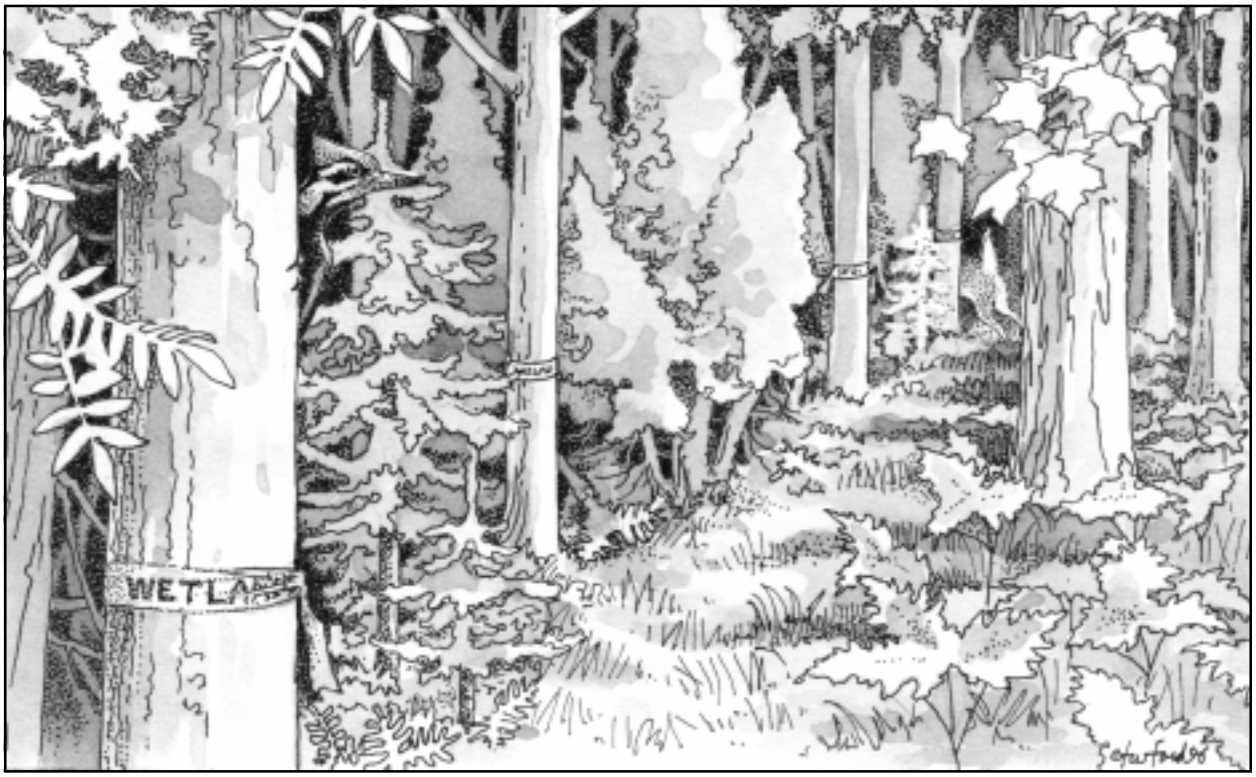
Wetland Delineation: What You Need to Know

CHAPTER 3



DO I HAVE A WETLAND ON MY PROPERTY?

The answers to this question, and the obvious follow-up question ("If I do, then where are the wetland boundaries?"), have significant implications on property values, wildlife management activities, restoration and enhancement potential, and regulatory review. This chapter is designed to provide a general background regarding the science and practice of wetland determination and delineation. Knowing the basics about wetland delineation will help you understand and analyze the work of consultants and regulatory agency staff regarding wetland delineation. Furthermore, this information will allow you to be a careful and educated consumer when selecting a wetland consultant. It is important to note that wetland determination and delineation can be a complicated process that requires substantial technical knowledge beyond what this chapter provides. For your own protection, you should contact the Michigan Department of Environmental Quality or hire a professional wetland consultant. Chapter 10 contains tips on how to select a wetland consultant.

Wetland determination (sometimes called identification) is simply the determination of whether an area is a wetland. Wetland delineation is the actual establishment of wetland boundaries. For landowners who want to protect the natural resources on their property, just knowing that a wetland exists may be enough information for a hands-off form of stewardship. However, if you want to "do something" in or adjacent to your wetland that might impact the wetland's functions (or is a regulated activity), then knowing the wetland boundaries is essential.

On the state level, the Michigan Department of Environmental Quality (MDEQ) is responsible for determining wetland boundaries and providing wetland assessments pursuant to Michigan's Wetland Protection statute. The MDEQ's wetland assessment program is discussed at the end of this chapter. On the federal level, the U.S. Environmental Protection Agency (EPA), the U.S. Army Corps of

Where Are Wetlands Usually Found?

Wetlands are typically found in depressions, the lowest portion of the landscape, or adjacent to lakes, rivers, or streams. Landscape position, climate, and soil type all influence wetland formation. You can expect to find wetlands in the following places:

- In low areas with a high water table.
- On slopes where groundwater breaks out as springs or seeps.
- Near rivers, streams, lakes, and the Great Lakes.
- In flat areas where clayey soils or bedrock close to the surface form an impervious layer that creates a "perched" water table.
- In abandoned ditches or stream channels.

Engineers (Corps), the U.S. Fish and Wildlife Service (FWS), and the Natural Resources Conservation Service (NRCS) all play a role in delineating wetlands in the administration of Federal laws that address wetlands (both for landowner incentive programs and regulations). For the purposes of this document, the discussion here will focus on wetland determination and delineation procedures used by the MDEQ.

Currently, the Michigan Department of Environmental Quality delineates wetlands according to the Michigan Department of Natural Resources' *Wetland Determination Draft Manual for Field Testing*. The purpose of this manual is to formalize the process used to delineate wetlands as they are defined in Section 30301(d), Part 303, Wetland Protection Act 451 of 1994.

> "Wetland" means land characterized by the presence of water at a frequency and duration sufficient to support, and that under normal circumstances does support, wetland vegetation or aquatic life, and is commonly referred to as a bog, swamp, or marsh.

Do I Have A Wetland On My Property?

Many property owners are confused about the technical definitions of wetlands. This is understandable given the variety of wetlands in Michigan and the fact that many wetland types look different than our traditional conception of a wetland (which is typically a cattail marsh). Below are a few questions that you can ask yourself about your land that relate to the information in this chapter. A YES answer to any of the questions may indicate that you have a wetland on your property.

YES	NO	
n	n	Is the ground soggy underfoot in the spring?
n	n	Are there depressions where water pools on the ground surface during the spring?
n	n	Do you avoid the area with heavy equipment for fear of getting stuck?
n	n	Would you need to ditch the site to dry it out?
n	n	Is the site in a depression that has a different vegetation community than the higher ground around it?
n	n	Are there groundwater seeps or springs present?
n	n	Are fallen leaves black or very darkly stained and contain sediment deposits on their surfaces?
n	n	Dig a hole. Is the soil gray, or contain bright mottles (red or orange) against a gray background?
n	n	If farmed, is there crop stress due to excessive water?
n	n	Does the National Wetland Inventory map, U.S.G.S. topographical map, or locally produced wetland inventory map show a wetland on your property?
n	n	Does the NRCS Soil Survey for your county show the soil on your property to be hydric, poorly, or very poorly drained?

Translating this statutory definition to an actual wetland delineation involves investigating vegetation communities and hydrology. Under Michigan's delineation methodology, soils are used as an indicator of hydrology. According to state law, all local units of government in Michigan must use the MDEQ's definition of wetlands. Federal wetland definitions and delineation methods differ slightly from state law. The primary difference between state and federal wetland delineation methods is that the federal delineation method considers hydric soils to be a

separate required parameter instead of an indicator of wetland hydrology.

Although regulatory definitions and delineation methods among agencies and those used by consultants are essentially the same, the actual "line" between upland and wetland is not always clear. This is understandable when you consider the variety of wetlands that occur in Michigan and that wetlands are ecosystems subject to natural influences that fluctuate (e.g., rainfall, temperature, or lake levels). State and federal agency staff sometimes disagree slightly on wetland boundaries. In addition, agency staff sometimes disagree with delineations conducted by consultants. Often, the resolution of disputed wetland boundaries requires multiple site visits by both parties. It is important to remember that the state and federal regulatory agencies have the ultimate authority over boundaries of wetlands regulated by state and federal statutes.

What's A Wetland Indicator Status?

The U.S. Fish and Wildlife Service, in cooperation with other agencies and professional botanists, developed the following categories to help determine if a vegetation community would be considered to be adapted to wetland conditions:

Obligate wetland plants (OBL)—Species in this category are estimated to occur in wetlands more than 99 percent of the time.

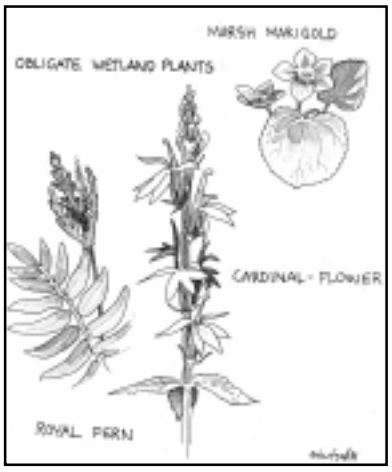
Facultative wetland plants (FACW)— Species in this category are estimated to occur in wetlands approximately 67-99 percent of the time.

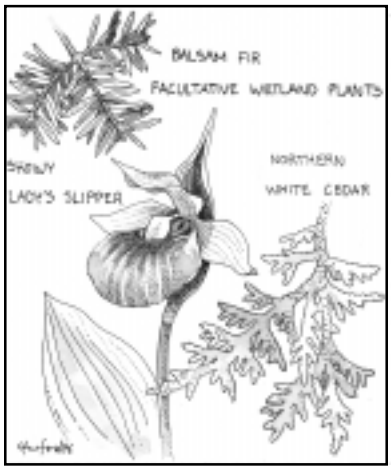
Facultative plants (FAC)—Species in this category are estimated to occur in wetlands approximately 34-66 percent of the time.

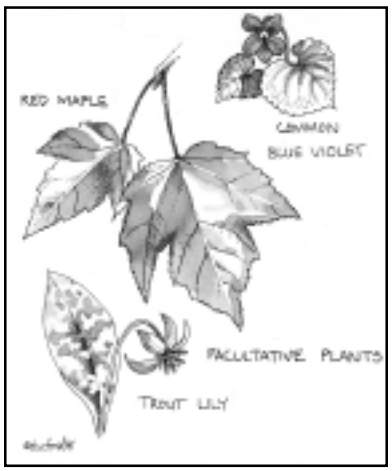
Not Shown:

Facultative upland plants (FACU)—Species in this category are estimated to occur in wetlands approximately 1-33 percent of the time.

Obligate upland plants (UPL)—Species in this category are estimated to occur in wetlands less than 1 percent of the time.







ENVIRONMENTAL INDICATORS OF WETLANDS

According to Michigan's wetland delineation method, there are two primary indicators of wetlands:

1) The predominance of plants adapted for living in saturated conditions (hydrophytic, or wetland, vegetation); and
2) The presence of water at or near the land surface permanently or periodically or for some portion of the growing season (wetland hydrology), which is commonly indicated by the presence of distinctive soils that develop under saturated conditions (hydric soils).

These indicators are interrelated, and with few exceptions, are present in undisturbed wetland areas. A 1995 report by the National Academy of Sciences reaffirms the scientific validity of wetland delineation methods that investigate vegetation, hydrology, and soils (either separately or as an indicator of hydrology). These indicators are briefly described below.

Hydrophytic Vegetation

Hydrophytic (water-loving, or wetland) vegetation is plant life that is adapted to grow in areas where the frequency and duration of inundation or saturation is sufficient to exert a controlling influence over the plant species present. Among

other things, all plants need oxygen and water. There is a point at which the frequency and duration of water in the soil causes at least periodic deficiencies in oxygen in the root zone. This is because water replaces air in the spaces between the soil particles in saturated conditions. In order to survive the stress of low oxygen levels in the root zone, hydrophytic plants have structural and functional adaptations which allow them to thrive in these areas. As a result, they are more successful competitors than other plants that are not adapted to living in saturated conditions. An example of a common adaptation that allows wetland plants to survive in wet conditions can be easily observed by cutting a cattail near its base. The air-filled tissue that you see in the cross-section transports air to the roots of the plant so that it can live in inundated areas.

For the wetland plant criteria to be met in determining that an area is a wetland, a predominance of wetland vegetation must be present—not just the occurrence of a single wetland plant. In other words, a wetland will have a community of plants that are adapted to survive in wet conditions. To help wetland delineators determine if a plant community is adapted to wetland conditions, the U.S. Fish and Wildlife Service (in cooperation with the Corps, the EPA, and the NRCS) has published a list of plant species that occur in wetlands for each state and region. The list separates plants into five basic groups, ranging from plants which almost always occur in wetlands to plants which almost never occur in wetlands. These five categories are referred to as wetland indicator statuses or wetland fidelity ratings. Typically, an area is considered to have a wetland plant community when more than 50 percent of the dominant species in each layer of vegetation (e.g., tree layer, shrub layer, or herbaceous layer) have wetland indicator statuses of FAC, FACW, or OBL (see side-bar for wetland indicator status definitions).

Common Field Indicators of Wetland Hydrology

In the absence of hydrologic data or direct evidence of hydrology, the following field indicators can be used to assess wetland hydrology.

***Oxidized root channels*:** Some hydrophytic plants transport oxygen to their root zone. Although iron in anaerobic environments is usually in a reduced state, the oxygen that is transported through the root channels causes it to oxidize (rust) along the root or rhizome and form iron oxide concretions (orange or red-brown in color) along the length of the root channel.

***Water marks*:** Water marks are commonly found on woody vegetation. They often occur as stains on bark or other fixed objects such as bridges or pilings. Plants and other vertical objects often have thin layers, coatings, or depositions of mineral or organic matter after inundation.

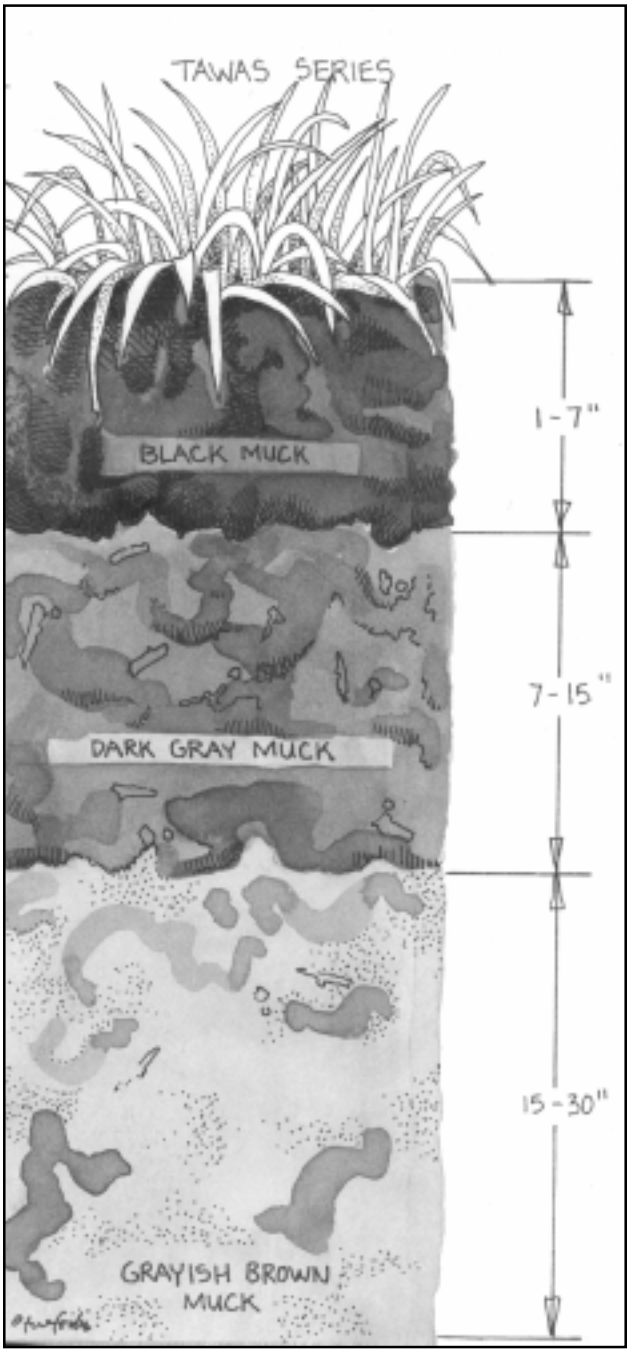
***Drift lines*:** Drift lines consist of debris (remnants of vegetation, sediment, litter, etc.) that was deposited as a result of water movement. Most common adjacent to streams or other sources of water flow, debris is usually deposited parallel to the direction of water flow. However, because shallow water can extend beyond where the debris is deposited, drift lines do not represent the maximum level of inundation.

***Water-stained leaves*:** Forested wetlands that are inundated earlier in the year will frequently have water-stained leaves on the forest floor. These leaves are generally grayish or blackish in appearance from being underwater for significant periods and are typically coated with sediment.

***Surface scoured areas*:** Surface scouring occurs along floodplains where overbank flooding erodes sediments. The absence of leaf litter from the soil surface is also sometimes an indication of prolonged duration.

Wetland Hydrology

Wetland hydrology refers to the specific hydrologic conditions that are required to form and maintain wetlands. Saturation at or near the surface, or inundation, for approximately 14 days or more during Michigan's growing season typically creates the necessary conditions in the soil to form and maintain wetlands. Wetland hydrology, hydric soils, and hydrophytic vegetation are all linked. Hydrophytic vegetation and hydric soils result from wetland hydrology; and conversely, the presence of hydrophytic vegetation and hydric soils indicate wetland hydrology.



Of the indicators used for wetland identification, wetland hydrology is the most variable and often the most difficult to observe directly. Numerous factors influence hydrology, including time of year, precipitation, topography, soil permeability, and plant cover. The technical wetland hydrology criteria looks at the distance to the water table based on soil drainage and permeability characteristics. Depending on the soil series, an area can have wetland hydrology even if the ground surface is never covered with water, so long as the water table is close enough to the surface to influence the root zone and cause the development of a wetland plant community.

Evidence of wetland hydrology can come from a variety of sources. When available, recorded hydrologic data or aerial photographs can be useful. Perhaps the best evidence is the direct visual observation of inundation or soil saturation. Saturated soils may be detected by digging a hole at least 18 inches deep and observing the water table after it has had a chance to stabilize in the hole.

In the absence of reliable hydrologic data or direct evidence of hydrology, field indicators have been developed for assessing wetland hydrology. These indicators are useful during the drier portions of the growing season when visual evidence of inundation or saturation is not possible. Some of the most common field indicators for hydrology include oxidized root channels, water marks, or surface scoured areas. Under Michigan's wetland delineation method, perhaps the most useful hydrology indicator is the presence of a hydric soil.

Hydric Soils

Hydric soils have physical and chemical indicators of repeated and prolonged saturation at or near the soil surface. These indicators are a direct result of the lack of oxygen in the upper part of the soil caused by the presence of water in the spaces between soil particles (which forces air out of the soil). In Michigan and most of the temperate regions of the United States, hydric soils are flooded, ponded, or saturated for about 14 or more days during the growing season.

The U.S. Department of Agriculture has developed a basic system of soil classification. There have been 10,500 types of soils, called soils series, identified in the United States. Hydric soils are usually divided into two categories: organic

and mineral. Organic soils are so named because they are made up of partly decomposed organic matter that forms peats and mucks. Almost all organic soils are considered hydric soils. The mineral soils that are hydric are set apart from non-hydric mineral soils because of their poor drainage characteristics or susceptibility to ponding and flooding. Because of these features, there is often a layer of muck that forms above the mineral component of the soil. There are several field indicators that can help in determining if a soil would be considered hydric, including organic surface layers, sulfidic materials, and soil color.

The National Technical Committee for Hydric Soils has developed criteria for hydric soils as well as a list of the nation's hydric soils, of which there are approximately 2,100 in the United States. Lists of hydric soils have been developed for some counties using recent updates and local knowledge.

Field Indicators of Hydric Soils

There are several field indicators that can help in determining if a soil would be considered hydric, including:

***Organic Soils*:** Are easily recognized as thick peats and mucks. Mucks feel greasy when rubbed between the fingers. Partially decomposed plant remains can be identified in peats.

***Organic Surface Layer*:** Organic surface layers often form above the mineral substrate in hydric mineral soils due to the greatly slowed decomposition of the organic matter as a result of soil saturation and inundation.

***Sulfidic Material*:** Soils that emit an odor of rotten eggs indicate permanent saturation and the presence of sulfidic material. Such permanent saturation causes anaerobic conditions that cause the sulfidic material to be chemically reduced to form hydrogen sulfide.

***Soil Color*:** Due to the presence of water in the soil column creating very low oxygen conditions, hydric mineral soils often form diagnostic colors. The two main categories of hydric soil colors are gleyed and low chroma/mottled soils. Gleying (bluish, greenish, or grayish colors) is an indication of a soil that is saturated for prolonged periods. Low chroma (dull) colors and mottles (bright splotches of color in a dull matrix) indicate soils that are alternately saturated and unsaturated during the growing season. Accurately identifying soil colors usually requires comparing the soil to standardized color charts made specifically for that purpose.

***Dark Vertical Streaking*:** In sandy soils with an organic surface layer, organic matter is moved downward through the sand as the water table fluctuates. This often occurs more rapidly in some sections of the soil than in others. As a result, a cross-sectional view of the soil as revealed in a soil pit will appear to be vertically streaked. (It is important to note that some non-hydric soils may also reveal vertical streaking.)

***Iron and Manganese Concretions*:** Under the chemical conditions of hydric soils, iron and manganese are sometimes segregated into concretions or soft masses. These accumulations are usually black or dark brown.

Exceptions

Although these indicators are routinely used by consultants and agency staff, it is important to note that there are several situations in which wetlands will not show direct evidence of these indicators. These areas include wetlands that have been disturbed (human intervention may have removed one or more of the indicators), newly created wetlands (hydric soils or hydrophytic vegetation may not have had a chance to fully develop), interdunal swale wetlands (hydric soils or wetland hydrology may be difficult to identify), and wetlands on sloping glacial till (wetland hydrology may not be evident). In addition, there are some cases in which wetlands can become dominated by facultative upland species. Although this is not a comprehensive list, it does provide examples of situations where the basic indicators of wetlands would not be readily evident.

MDEQ WETLAND ASSESSMENT PROGRAM

In response to requests from landowners and members of the development community, the Michigan Department of Environmental Quality (MDEQ) implemented a new Wetland Assessment Program in 1998. Authorized by Michigan's wetland law and administrative rules, the program offers three levels of service to assist landowners in identifying wetland and upland areas on their property. The statute also

authorizes the MDEQ to assess fees for these services.

The services and fees were developed based on the MDEQ's experience with wetland determinations in the past and on estimated costs of the services to be provided. The three-level structure provides landowners, developers, and land management consultants with a choice of services depending on their individual needs. The Wetland Assessment Program provides a cost-effective means to get critical wetland information and MDEQ verification of wetland boundaries on a specific property. Prior to the establishment of the Wetland Assessment Program, jurisdiction decisions were typically made in the context of permit application review. The services provided by this program should help landowners and developers get the information they need early in the land planning process, making it easier to avoid and minimize impacts to wetlands. The types of services available and associated fees (as of December, 1998) are outlined below:

Level 1 Assessment: In-Office Review
MDEQ personnel will conduct an in-office review of readily available information on an identified area of land, including maps showing the approximate location of wetlands in the given area. Staff will provide applicants with copies of available maps (e.g., NWI, soils, and MIRIS), a general interpretation of the maps with respect to the presence of wetlands, and other helpful information regarding the regulatory process and wetland protection, such as permit applications, consultant lists, and property owner's guidebooks. The fee for this service is $50.

Level 2 Assessment: On-Site Determination
Technical specialists will conduct an on-site assessment of an identified area of land to determine the presence and location, or absence, of wetlands. A written report of findings, including a map showing the apparent location of wetland and upland areas, and information regarding the regulatory process will be provided. The report will include a statement that the MDEQ lacks jurisdiction, under Part 303, over those areas classified as uplands for three years from the assessment date. This service does not require delineation or marking of the wetland boundaries prior to the MDEQ's assessment, but does require marking the area to be assessed. The fee is $200 for areas of one acre or less and $50 for each additional acre of land to be assessed.

Level 3 Assessment: On-Site Wetland Boundary Confirmation
Technical specialists will conduct an on-site assessment of an identified area of land to confirm specific wetland boundaries established by a wetland consultant. Staff will review the staked and/or flagged boundaries and submit a written report of their findings to the applicant. This service will provide a higher level of confidence in the specific location of wetlands on the subject property, as well as provide a three-year guarantee that the MDEQ lacks jurisdiction, under Part 303, over those areas identified as uplands. This service requires delineation, marking, and mapping of the wetland boundaries prior to the MDEQ's assessment. The fee is $150 for areas of one acre or less, and $15 for each additional acre of land to be assessed.

Fees and Application Process
As with private consultants, the MDEQ staff will only be able to perform the assessment service during times of the year and under conditions that will provide reliable information. In the event that winter weather conditions prohibit MDEQ staff from conducting a thorough site assessment, inclusive of evaluating vegetation, soil, and hydrologic information, the assessment will be delayed until weather conditions permit the collection of all pertinent information to make an accurate assessment. If recent disturbances (e.g., lack of vegetation, disturbed soils, drainage

Wetland Identification Resources

There are many available resources for landowners who want to know as much as possible about the wetlands on their property. Although many of these resources are referred to as "wetland maps," it is important to note that most are developed from "off-site" information and none of them provide definitive wetland boundaries. There is simply no substitute for on-site wetland delineation conducted by a trained professional.

***Natural Resource Conservation Service Soil Surveys*:** The U.S. Department of Agriculture's Natural Resource Conservation Service (NRCS) has conducted surveys of the soils in most counties of the state. The soil surveys contain a wealth of useful information, including soil maps, engineering suitability ratings, soil profile descriptions, and hydrologic characteristics. This information is extremely valuable in determining if a hydric soil occurs on a site. Keep in mind, however, that soil survey maps are not accurate enough to show the exact boundaries of a soil series. For this reason, it's always advisable to dig a soil pit and compare what you see to the soil description. Soil surveys are available from your county Soil and Water Conservation District, or your NRCS District Conservationist.

***Hydric Soils of the State of Michigan*:** The Natural Resources Conservation Service, in cooperation with the National Technical Committee for Hydric Soils, has compiled a list of hydric soils in Michigan. This list can be used in conjunction with county soil surveys to locate areas where wetlands might occur. This publication is available from your county Soil and Water Conservation District, or your NRCS District Conservationist.

Michigan Resource Information System (MIRIS) Current Use Inventory Maps: These maps are compiled by the Michigan Inventory Program of the Michigan Department of Natural Resources. The maps contain inventories of 60 different land use classifications of which approximately 12 relate to wetlands. Specific classes of wetlands include wooded, shrub swamp, aquatic bed, emergent, and mud flats. In addition, there are other classes which are not classified as wetland in the MIRIS system, but more than likely would be considered jurisdictional wetlands. These include lowland hardwood and lowland conifer forest classifications. The wetland boundaries shown on these maps are meant to identify approximate boundaries. To find out if your county has a completed MIRIS inventory, call your county planning and zoning department or regional planning office.

***National Wetlands Inventory (NWI) Maps*:** On these maps, developed by the U.S. Fish and Wildlife Service, wetlands are delineated based on features shown on aerial photographs and are usually displayed on USGS topographic maps. NWI maps are used to show the approximate extent of a wetland and its association with other wetland and non-wetland areas. Due to the scale of the aerial photography used and the lack of ground verification, NWI maps cannot be used as the sole basis for determining whether an area is a wetland. To order NWI Maps, contact the MSU Distribution Center, 104 Central Services, E. Lansing, MI, 48824-1001; or call (517) 353-6740.

***United States Geological Survey (USGS) Topographic Maps*:** These maps are available in several different scales and provide landmark features including towns, roads, bridges, streams, buildings, water bodies, etc. that are not found commonly on road maps. The topographic lines and elevations are helpful in determining drainage patterns. These maps should not be used to delineate wetland boundaries, as the scale is too small to make the boundaries accurate, and not all wetlands are indicated. However, those areas that are marked as wetlands are most likely to be wetlands unless altered since the map was made. To order USGS Topo Maps, call 1-800-USA-MAPS.

Wetland Identification Resources, continued

***Natural Resource Conservation Service Mapping*:** As part of their administrative responsibilities under the conservation provisions of the Farm Bill, NRCS staff map wetlands on agricultural lands enrolled in agricultural conservation programs. Although NRCS maps do not define jurisdiction for wetland regulation under Michigan's law, they can provide useful information. The Farmed Wetland and Prior Converted mapping classifications can be especially helpful in identifying wetland restoration and enhancement sites. Contact your NRCS District Conservationist to find out if these maps are available for your property.

***Local Wetlands Maps and Inventories*:** Many local organizations or municipal governments have developed wetland maps for their service area. Although they vary greatly in terms of scale and quality, they can serve as excellent resources.

***Wetland Plants of the State of Michigan*:** The U.S. Fish and Wildlife Service, as part of the National Wetlands Inventory Program, has compiled a wetland plant list for Michigan. This plant list includes a comprehensive list of the plants that occur in wetlands and their wetland indicator status. This plant list is essential for determining whether the plant community in an area meets wetland vegetation criteria. To order this publication, contact the U.S. Fish and Wildlife Service Field Office in Lansing at (517) 351-2555.

Floristic Quality Assessment with Wetland Categories and Computer Application Programs for the State of Michigan: Developed by the Michigan Department of Natural Resources Natural Heritage Program, this document describes the use of Floristic Quality Assessment as a tool to assist environmental decision-makers in assessing the floristic, and implicitly, the natural significance of any given area throughout Michigan. The assessment method is not intended for use as a stand-alone method, but to compliment and corroborate other methods of evaluating the natural quality of a site. Appendix C of this document is the Michigan Plants Database, which is similar to the U.S. Fish and Wildlife Service list of wetland plants, but is expanded to include non-wetland plants and information relevant to the Floristic Quality Assessment.

***Plant Identification Guidebooks*:** The precise identification of vegetation to the species level is necessary to determine if an area has a hydrophytic vegetation community. For example, identifying a tree as a "maple" is not very helpful, as there are six species of the maple family in Michigan with wetland indicator statuses ranging from FACW to FACU. There are numerous excellent plant guidebooks to choose from, including *Michigan Trees* by Barnes and Wagner, *Ferns of Michigan* by Billington, *Michigan Wildflowers* by Smith, and the three-volume *Michigan Flora* by Voss. In addition, there are several guidebooks specific to wetland plants.

***Aerial Photography*:** Although not as readily available to the public as the sources listed above, aerial photography or other remote sensing data can be very helpful. Aerial photography can be particularly useful in identifying patterns of plant communities.

***Local Knowledge*:** In addition to these published resources, information about the wetlands on your property may be available from former landowners or long-time residents of your area.

diversion, etc.) prevent MDEQ personnel from making an assessment, a report specifying the reasons will be submitted to the applicant. The report will also include a description of the information needed to make a final assessment.

Individuals interested in assessment services must submit a wetland assessment application to the MDEQ indicating the level of service desired, a description of the

area to be assessed, and payment for the associated fee. Wetland Assessment Program applications are available from the Inland Lakes and Wetlands Unit of MDEQ's Land and Water Management Division. See Appendix A for address and phone number. If you require the assistance of a private wetland consultant, see Chapter 10 for some helpful hints on selecting a consultant.

SUMMARY

As you can see by this condensed description of the basics, the scientific basis for wetland delineation is quite complicated. If nothing else, what you need to know about wetland identification and delineation can be summed up like this: Land does not need to be wet all year to be a wetland—it only needs to be wet long enough during the growing season to exert a controlling influence on the vegetation so that a wetland plant community occurs there.

This chapter is not meant to serve as a wetland delineation manual. Rather, its purpose is to provide you with enough information to understand the scientific basis for wetland determination and delineation. This information will help you select a wetland consultant who will meet your needs and help you understand wetland determinations and delineations conducted on your property. This information will also help you determine what level of service you may want to select from the MDEQ's Wetland Assessment Program. To become more familiar with the indicators of wetlands, take some time to explore your wetland and investigate the soils, plants, and hydrology. Chapter 4 provides some suggestions to get you started exploring and assessing your wetland.