# Wetlands Identification Basics for Open Space Protection

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* Special thanks to MACC for many of these slides!

## Why Wetlands are Protected:

**8 Functions and Values from the Massachusetts Wetlands Protection Act**

- Private & Public Water Supply
- Groundwater Protection
- Pollution Prevention
- Flood Prevention
- Prevention of Storm Damage
- Land Containing Shellfish
- Fisheries
- Wildlife Habitat

## Reasons for Open Space Protection:

**(From MACC Training)**

- Protect Water Resources
- Preserve Community Assets – Agricultural, Scenic, Historic
- Growth Management
- Outdoor Recreation & Education
- Respond to Climate Change
- Protect Habitat & Biodiversity

# Other Reasons Open Space & Wetlands Intersect

- Trail planning, construction and maintenance
- Encroachment & Violations

# Jurisdictional Wetland Resource Areas

Defined in the Regulations 310 CMR 10.00

https://www.mass.gov/doc/310-cmr-1000-the-wetlands-protection-act/download

**Coastal Wetlands**

- 10.25: Land under the Ocean
- 10.26: Designated Port Areas
- 10.27: Coastal Beaches
- 10.28: Coastal Dunes
- 10.29: Barrier Beaches
- 10.30: Coastal Banks
- 10.31: Rocky Intertidal Shores
- 10.32: Salt Marshes
- 10.33: Land under Salt Ponds
- 10.34: Land Containing Shellfish
- 10.35: Banks of or Land under Ocean, Ponds, Streams, Rivers, Lakes or Creeks that Underlie Anadromous/Catadromous ("Fish Run")

**Inland Wetlands**

- 10.54: Bank (Naturally Occurring Banks and Beaches)
- 10.55: Bordering Vegetated Wetlands (Wet Meadows, Marshes, Swamps and Bogs)
- 10.56: Land under Water Bodies & Waterways (under Creek, River, Stream, Pond or Lake)
- 10.57: Land Subject to Flooding (Bordering and Isolated Areas)
- 10.58: Riverfront Area

# Wetland?

# Wetland!

# How to Identify BVW

- Hydrology: saturation or inundation (flooding or ponding) during the growing season sufficient to produce anaerobic conditions in the upper part of the soil. Key Concepts: Frequency, Duration, Seasonality
- Hydrology drives the following two features
  - Soil (hydric soil): a soil that is saturated, ponded, or flooded long enough during the growing season to cause anaerobic conditions in the upper part.
  - Vegetation: areas where the plant community is dominated by plants adapted to life in saturated soils.


# Bordering Vegetated Wetland (BVW)

- According to 310 CMR 10.55(2):
- Freshwater wetlands which **border** on creeks, rivers, streams, ponds, and lakes;
- Bogs, swamps, marshes and wet meadows;
- Areas where the soils are **saturated or inundated** such that they support a **predominance** (i.e., >50%) of wetland indicator plants

- Two criteria (310 CMR 10.55(2)):
- Predominance of **Wetland Vegetation** (>50% or more in abundance), and;
- Indicators of Saturated or **Inundated Conditions** (i.e., hydrology, including **hydric soils**).

# Indicators of Saturated or Inundated Conditions

**Evidence of Surface Water** →

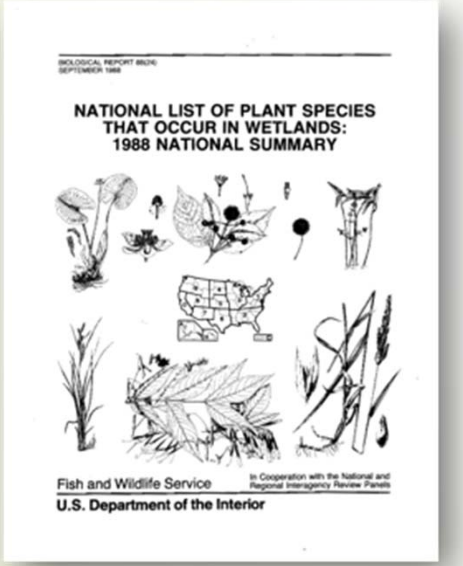
- Hydrological records
- Direct observation of inundation
- Water marks
- Water-stained leaves
- Sediment deposits
- Drift lines
- Scoured areas
- Drainage patterns
- Fingernail clam and aquatic snail shells
- Caddisfly cases

**Evidence of Groundwater**
(including Hydric Soils) →

- Free water in a soil test hole;
- Saturated soil;
- Oxidized rhizospheres

# Secondary Indicators of Hydrology

Plant species that typically occur in wetlands and generally are good indicators of wetland hydrology are considered "Wetland Indicator Plants"





The national list uses a common name and the scientific name for each plant and classifies each plant based on the frequency or the percentage of time that it is found in wetland versus upland conditions

National List of Plant Species That Occur in Wetlands - Massachusetts 1988

Wetland Plant Information provided by U.S. Fish and Wildlife Service, National Wetland Inventory, Ecology Section

| COMMON NAME | SCIENTIFIC NAME | MA IND |
|---|---|---|
| ADDER'S-MOUTH,GREEN | Malaxis unifolia | FAC |
| ADDER'S-MOUTH,WHITE | Malaxis monophyllos | FACW |
| ADDER'S-TONGUE,NORTHERN | Ophioglossum vulgatum | FACW |
| ALDER,BROOK-SIDE | Alnus serrulata | OBL |
| ALDER,EUROPEAN | Alnus glutinosa | FACW- |
| ALDER,GREEN | Alnus crispa | FAC |
| ALDER,SEASIDE | Alnus maritima | OBL |
| ALDER,SPECKLED | Alnus incana | NI |
| ALDER,SPECKLED | Alnus rugosa | FACW+ |
| ALEXANDERS,GOLDEN | Zizia aurea | FAC |
| AMARANTH,PALMER'S | Amaranthus palmeri | FACU |
| AMARANTH,PROSTRATE | Amaranthus blitoides | NI |
| AMARANTH,RED-ROOT | Amaranthus retroflexus | FACU |
| AMARANTH,ROUGH-FRUIT | Amaranthus tuberculatus | FACW |
| AMARANTH,SEABEACH | Amaranthus pumilus | FACW* |
| AMARANTH,SPINY | Amaranthus spinosus | FACU |
| AMARANTH,TIDEMARSH | Amaranthus cannabinus | OBL |
| AMARANTH,WHITE | Amaranthus albus | FACU |
| ANGELICA,PURPLE-STEM | Angelica atropurpurea | OBL |
| ARROW-GRASS,SEASIDE | Triglochin maritimum | OBL |
| ARROW-HEAD,AWL-LEAF | Sagittaria subulata | OBL |
| ARROW-HEAD,BROAD-LEAF | Sagittaria latifolia | OBL |
| ARROW-HEAD,ENGELMANN | Sagittaria engelmanniana | OBL |
| ARROW-HEAD,GRASS-LEAF | Sagittaria graminea | OBL |
| ARROW-HEAD,HOODED | Sagittaria calycina | OBL |
| ARROW-HEAD,NORTHERN | Sagittaria cuneata | OBL |
| ARROW-HEAD,STIFF | Sagittaria rigida | OBL |
| ARROW-HEAD,WATER | Sagittaria stagnorum | OBL |
| ARROW-WOOD | Viburnum dentatum | FAC |
| ARROW-WOOD,NORTHERN | Viburnum recognitum | FACW- |
| ARUM,ARROW | Peltandra virginica | OBL |
| ASH,BLACK | Fraxinus nigra | FACW |
| ASH,GREEN | Fraxinus pennsylvanica | FACW |
| ASH,WHITE | Fraxinus americana | FACU |
| ASPARAGUS-FERN,GARDEN | Asparagus officinalis | FACU |
| ASPEN,BIG-TOOTH | Populus grandidentata | FACU- |
| ASPEN,QUAKING | Populus tremula | FACU |
| ASTER,ANNUAL SALTMARSH | Aster subulatus | OBL |
| ASTER,BLAKE'S | Aster x blakei | FACW+ |

# USFWS Indicator Status

Based on probabilities ...

- **Obligate Wetland (OBL)** - Occurs w/in an estimated **99%** probability in wetlands*
- **Facultative Wet (FACW)** - Estimated **67-99%** probability of occurrence in wetlands*
- **Facultative (FAC)** - Equally likely to occur in wetlands & non-wetlands **34-66%***
- **Facultative Upland (FACU)** – **67% to 99%** probability in non-wetlands, **1% to 33%** in wetlands.
- **Obligate Upland (UPL)** – **99%** non-wetlands in this region

*Predominance of Wetland Vegetation (>50% or more in abundance)

# Examples of Common Wetland Plants

Obligate

Skunk Cabbage

Facultative Wetland

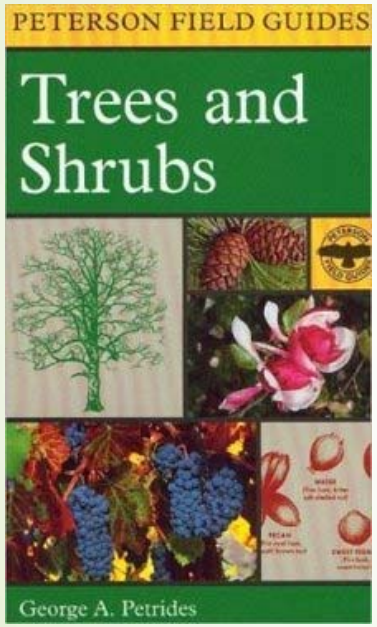
Highbush Blueberry

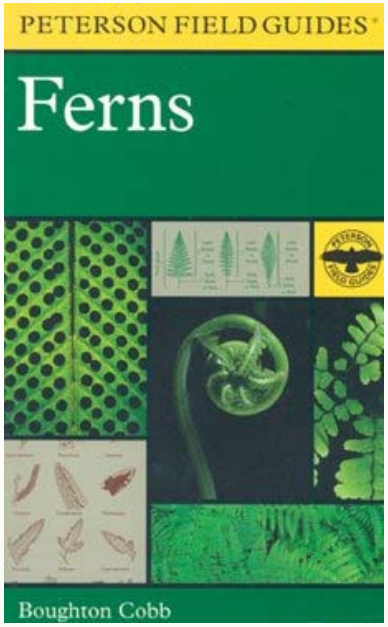
Facultative

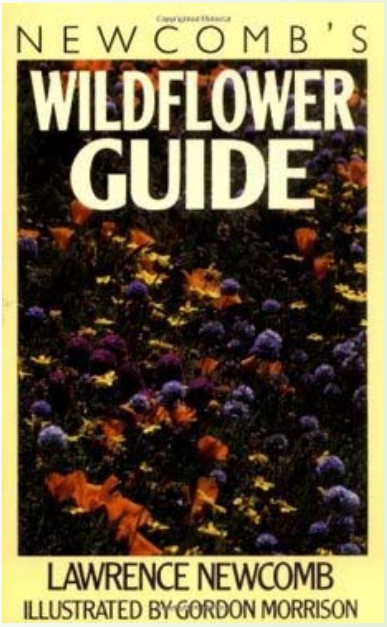
Yellow Birch

# Plant Identification

Use Field Guides:



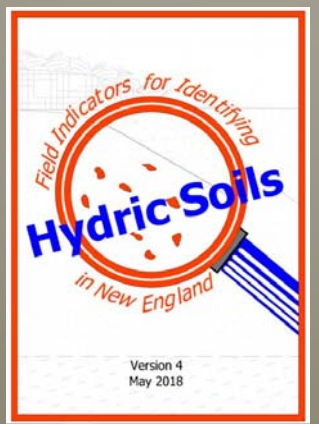

Or newer tools like online **Go Botany** (https://gobotany.nativeplanttrust.org ) from the Native Plant Trust or phone apps like **PlantSnap**

# Hydric Soils

## What are Hydric Soils

A soil that is saturated, ponded, or flooded long enough during the growing season to cause anaerobic conditions at or near the surface (DEP BVW Delineation Manual).

**Rule #1** - If it's black and grey stay away! Brown and yellow happy fellow!" (not really this simple…)




# Where to find more training and information:

- MassDEP Wetlands Protection Website: https://www.mass.gov/wetlands-protection
- Massachusetts Association of Conservation Commissions (MACC): Massachusetts Association of Conservation Commissions (maccweb.org)
  - Resources, training, annual conference
- UNH wetland delineation course: U.S. Army Corps Wetland Delineator Methods | Professional Development & Training (unh.edu)
- The Native Plant Trust also has courses (more plant focused): Classes & Field Studies - Native Plant Trust
- Manuals:
  - Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act - https://www.mass.gov/files/documents/2016/08/pn/bvwmanua.pdf
  - Coastal Wetlands Manual (CZM) - https://www.mass.gov/doc/applying-the-massachusetts-coastal-wetlands-regulations-a-practical-manual-for-conservation/download