

Bradford Pear



European Black Alder



Norway Maple



Sycamore Maple



Cork-Trees



Japanese Angelica Tree



Paper Mulberry



Tree of Heaven



Empress or Princess Tree



Mimosa



Siberian Elm



White Mulberry



Invasive Vines

Chinese and Japanese Wisteria



English Ivy



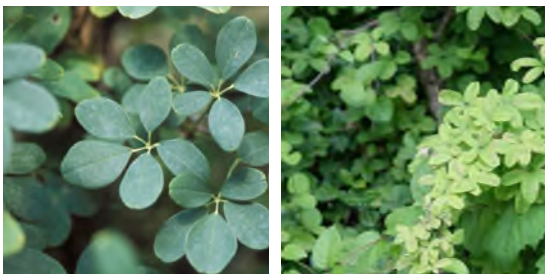
Kudzu*



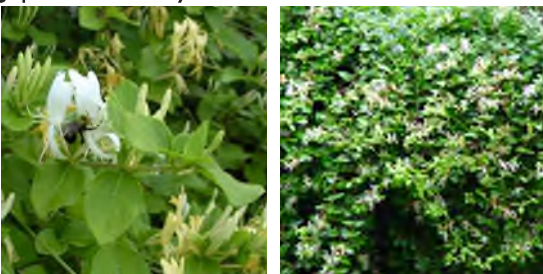
Pale and Black Swallow-Worts



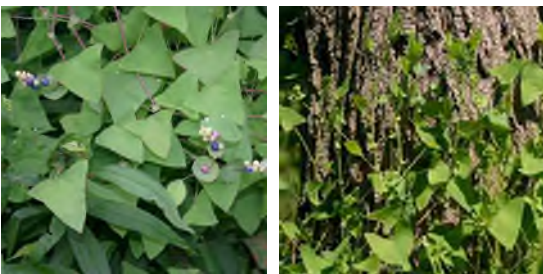
Chocolate Vine



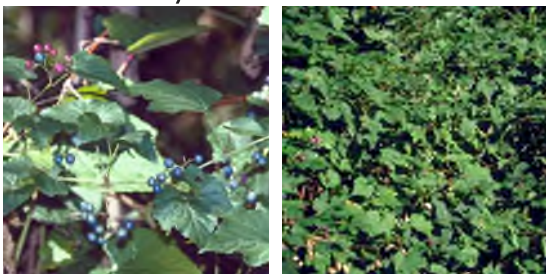
Japanese Honeysuckle



Mile-a-Minute*



Porcelain Berry



Common and Bigleaf Periwinkle



Japanese Hops



Oriental Bittersweet



Winter Creeper



*noxious weed

Where to Find Your BMP Maintenance Requirements

When your house or place of business was built or an addition/improvement was completed, chances are high that design plans—that included your stormwater management BMPs—were submitted to the local municipality for approval. The municipality will consider long term maintenance of the BMP before approving the design plans. The conditions of maintenance are usually explained in these plans. The section of the plans that includes the BMPs is generally referred to as the “PCSM Plan,” “Stormwater Management Plan,” or something similar. These plan sheets will show an overview of the entire property with locations of the BMPs and a plan sheet with details of individual BMPs and corresponding notes regarding a BMP.

There are two primary sets of notes you will want to locate and review. The “General Notes” will either be on the very first plan sheet or the plan sheet showing the overview of locations of BMPs on your property. The general notes will call out items such as who will maintain the stormwater BMPs after construction has ended (which will most likely be the property owner). Another common general note is the property owner shall take time to make a visual inspection after all storm events and at least once every three months of the stormwater BMPs to ensure they are functioning appropriately.

EXAMPLE GENERAL NOTES FROM PLAN

1. XYZ DEVELOPMENT, INC., HEREINAFTER REFERRED TO AS “OWNER” SHALL OWN, MAINTAIN AND BE RESPONSIBLE FOR ALL STORMWATER MANAGEMENT AND PERMANENT CONTAINMENT FACILITIES (IE. CULVERTS, OUTLET STRUCTURES, STORMWATER BASIN, FOREBAYS, INFILTRATION BED, ETC.) THAT ARE LOCATED OUTSIDE OF THE STREET RIGHT-OF-WAYS AS PROPOSED ON THE POST CONSTRUCTION STORMWATER MANAGEMENT PLAN (PCSM).
2. THE OWNER SHALL CONDUCT A VISUAL INSPECTION OF ALL STORMWATER MANAGEMENT AND PERMANENT STORAGE FACILITIES AT LEAST ONCE EVERY THREE MONTHS AND IMMEDIATELY AFTER STORM EVENTS. SUCH VISUAL EXAMINATION SHALL AT LEAST INVOLVE AN EXAMINATION OF THE STORMWATER COLLECTION AND CONVEYANCE SYSTEMS FOR DEBRIS DEPOSITION (SUCH DEBRIS MAY INCLUDE, BUT NOT BE LIMITED TO AGGREGATE MATERIAL, LEAVES, GRASS CLIPPINGS, SOIL AND TRASH), AND AN EXAMINATION OF THE PERMANENT STORAGE STRUCTURES FOR SOIL AND STRUCTURAL SETTLEMENT, DEPRESSIONS, SINKHOLES, SEEPS, TANK LEAKAGE, STRUCTURAL CRACKING, ANIMAL BURROWS, EXCESSIVE VEGETATION, CLOGGING, EROSION AND FOUNDATION MOVEMENT.
3. THE OWNER SHALL REMOVE ANY ACCUMULATION OR DEBRIS AND REPAIR ANY DAMAGE TO THE STORMWATER MANAGEMENT AND PERMANENT STORAGE FACILITIES. REPAIRS SHALL BE MADE USING MATERIAL THAT MEETS OR EXCEEDS THE SPECIFICATIONS PROVIDED ON THE PCSM PLAN.

The second set of notes for a BMP in the design plans (generally found with the details of individual BMPs) will include “Operation and Maintenance Notes.” These notes call out specific maintenance that needs to occur for an individual BMP. Most of the operation and maintenance notes for an individual BMP are covered in other sections of this guide. However, there may be more specific maintenance requirements in the design plan that you should be aware of and will want to follow.

EXAMPLE “OPERATIONS AND MAINTENANCE NOTES” IN A PCSM PLAN

OPEN CHANNEL SWALE

- THE OPEN CHANNEL SWALE SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORM EVENTS. INSPECTIONS SHALL BE IN WET WEATHER TO DETERMINE IF FACILITY IS FUNCTIONING.
- REPAIR EROSIONS AND MAINTAIN ACCESS SURFACE IN GOOD CONDITION
- CHECK FOR DEWATERING WITHIN 48 HOURS OF RAINFALL, NOTICEABLE ODORS, WATER STAINS ON THE FILTER SURFACE OR AT THE OUTLET AND PRESENCE OF ALGAE OR AQUATIC VEGETATION.
- REMOVE AND REPLACE FILTER MEDIA AS NEEDED.
- THE OPEN CHANNEL SWALE SHALL BE MOWED TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 6 INCHES.
- MONITOR CHECK DAMS AND WEIRS FOR FLOW GOING AROUND STRUCTURE,
- EROSION AT THE DOWNSTREAM TOE AND STRUCTURAL DETERIORATION.

STORM WATER BASIN

- FACILITY SHOULD BE INSPECTED ANNUALLY AND AFTER MAJOR STORM EVENTS. INSPECTION SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF POND IS FUNCTIONING PROPERLY.
- CHECK FOR WOODY VEGETATION ON DAM AND WITHIN 25 FEET OF RISER.
- VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIPRAP STONES OUTLET AREA SHALL BE REPAIRED.
- STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, RISER AND PIPES SHALL BE REPAIRED UPON DETECTION OF ANY FAILURE. CHECK FOR MISSING MANHOLE COVERS OR GRATES; CONDITIONS OF CONCRETE AND METAL; OVERALL STRUCTURAL INTEGRITY. GRASS SHOULD BE MAINTAINED AND IN GOOD CONDITION AND BE LESS THAN 12” IN MOWING HEIGHT.
- DEBRIS AND LITTER SHALL BE REMOVED FROM POND WHEN 30% OF STORAGE LOSS HAS BEEN ACHIEVED OR WHEN NECESSARY FOR AESTHETIC REASONS.

ANOTHER EXAMPLE OF OPERATIONS AND MAINTENANCE NOTES

§ PERVIOUS PAVEMENT

Pervious pavement should be vacuumed biannually with a commercial cleaning unit. Pavement washing systems or compressed air units are not recommended.

Planted areas adjacent to pervious pavement should be well maintained to prevent soil washout into the pavement. If any washout does occur it should be cleaned off the pavement immediately to prevent further clogging of the pores. If any bare spots or eroded areas are observed within the planted areas, they should be replanted and/or stabilized immediately.

Do not allow construction staging, hazardous materials storage, or soil/mulch storage on unprotected pervious pavement surface.

Do not use sand, cinders, or other abrasives on pervious pavement for winter maintenance.

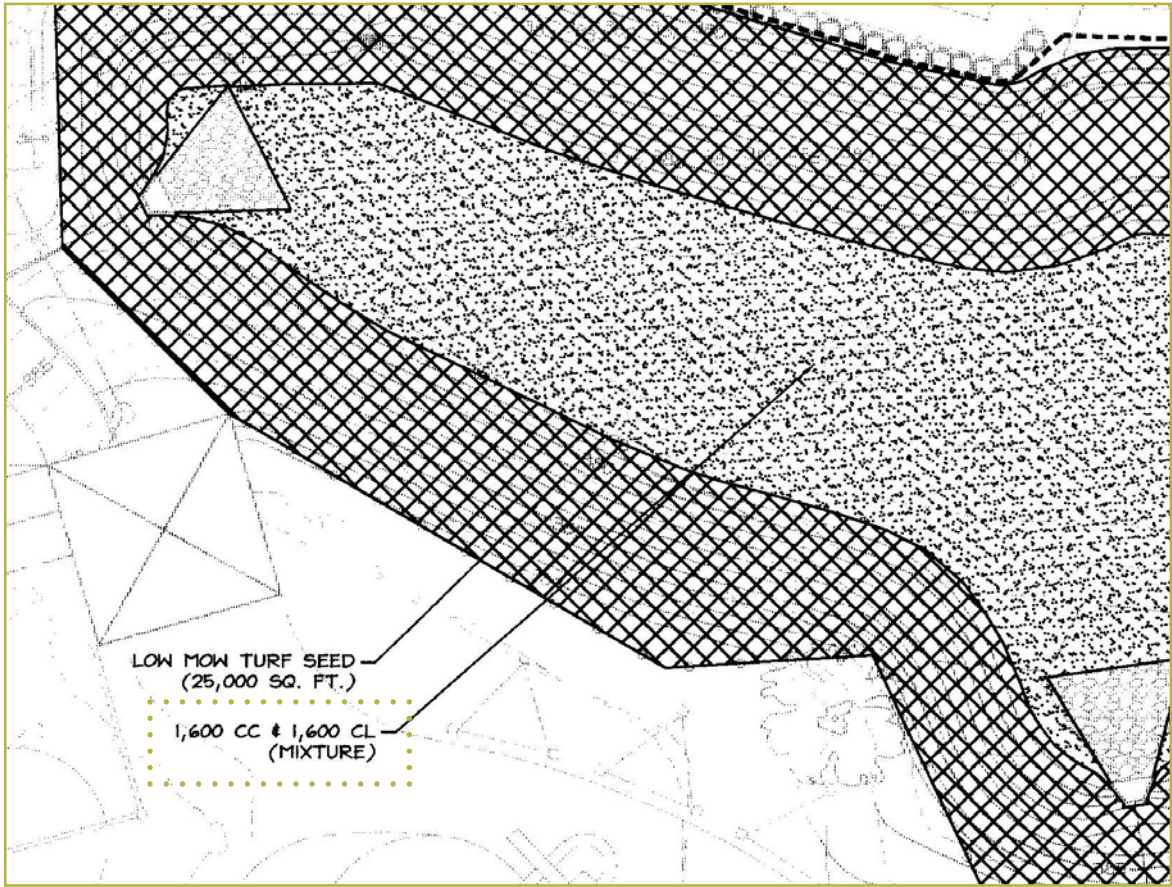
Do not seal coat any portion of the pervious pavement surface for any reason.

Another plan sheet in the design plans that are related to the BMPs and sometimes overlooked is the “Landscape Plan” (sometimes referred to as the “Planting Plan” or a similar name). The Landscape Plan will show what the permanent vegetation and conditions should be for a BMP. The permanent vegetation may be turf grass, a type of perennial plant, or a combination. Conditions shown in the plan may include how much mulch or types of soil amendments that should be in place or added at periodic intervals.

If you do not have a copy of the design plans for your property, you can contact your local municipality to see if they can provide a copy for you. If a copy is not available or conditions have changed, you can build your own maintenance plan (see the “How to Build Your Own Maintenance Plan” section in this guide). It is also a good idea to use both the tips outlined in this guide together with the design plan notes to help make sure all considerations are covered.

The **Homeowner’s Guide to Best Management Practice Operations & Maintenance** was developed to help owners understand, locate, or develop the maintenance requirements necessary for a fully functioning stormwater management BMP.

EXAMPLE PLANTING PLAN FOR AN INFILTRATION BASIN



EXACT TYPES OF VEGETATION/PLANTS THAT SHOULD BE IN BASIN PER EXAMPLE ABOVE

QTY.	KEY	BOTANICAL NAME	COMMON NAME
1,600	CC	Carex crinita	Fringed Sedge
1,600	CL	Carex lurida	Lurid Sedge

How to Build Your Own Maintenance Plan

A maintenance plan for your BMPs can be very comprehensive or simple. It is more about “styles vs. standards.” The standard is a maintenance plan is a very good idea. The style of the maintenance plan is up to you. A maintenance plan should outline the who, what, when, where, and how for an individual BMP. At the end of the day, you want to spell out the details behind inspections and maintenance activities.

The **Homeowner’s Guide to Best Management Practices Operation & Maintenance** was developed specifically to assist BMP owners with maintaining their stormwater management facilities. Details, common issues, and considerations for individual types of BMPs are included in the guide. Each individual BMP type also includes a Maintenance Table outlining “typical maintenance indicators” and corresponding “typical maintenance actions.” The Maintenance Table can be used as your master checklist for inspections and guiding maintenance activities if an issue or poor conditions are encountered. In reality, the conditions described in the Maintenance Table are generally the same conditions your local municipality will be observing if your BMP is inspected.



THE WHO?

List who will be responsible for inspections and maintenance activities. You may perform most maintenance yourself but need help with one or two of your BMPs. For example, one of your BMPs may be porous paving. Most homeowners or small business owners do not own a vacuum truck to clean the paving area twice a year. In turn, list who will vacuum the porous paving area.

THE WHAT?

List what you are inspecting and what maintenance activities will need to occur. Refer to the guide sheets and corresponding Maintenance Tables for individual BMPs.

THE WHEN?

The Operation and Maintenance Notes in the original design plans should tell you when you should inspect and when certain maintenance activities should occur. If there are no design plans, follow the tips in the guide sheets for individual BMPs. At a minimum, you should consider inspecting once every season. Specific actions such as replacing mulch media might need to occur every spring. If this is the case, note it.

THE WHERE?

This is simply the locations of all your BMPs that need to be inspected and maintained. It is a good idea to also outline where removed trash, debris, or landscape waste will be disposed.

THE HOW?

Outline how you will maintain certain features. As an example, one item that needs focus may be keeping invasive vegetation out of your BMP. You could either remove by hand or apply approved and allowed herbicides, or perhaps a combination.

To build your own maintenance plan, you generally want to start with the Operation and Maintenance Notes in the original and approved design plans (see the “Where to Find Your BMP’s Maintenance Requirements” section). These will provide the over-arching maintenance considerations you should be concerned with. Generally, the notes will spell out when you should be inspecting your BMPs. If the original design plans cannot be found or do not describe maintenance activities, then use the guide sheets for individual BMPs to outline maintenance activities.

BUILDING YOUR MAINTENANCE PLAN FOR A BMP EXAMPLE:

Your BMP is a detention basin, and the Operation and Maintenance Notes in the design plans may indicate “vegetation shall be re-established in scoured or eroded areas where the vegetation did not successfully establish or died.”

Next, look at the planting or landscape plan in the design plans for the vegetation that should be observed in the basin (if you are unsure what the vegetation looks like, refer to the Plant Picture section in the guide). Make a note of the required vegetation. Most likely, a Plant List will be on the Planting Plan that spells out the exact vegetation/plants.

Refer to the individual BMP information sheet for Dry Detention Basins in the **Homeowner’s Guide to Best Management Practices Operation & Maintenance**. Per the Maintenance Table, you will need to re-seed or re-establish vegetation in bare spot areas. Pictures are provided in the common issues section of examples of poor vegetation coverage that you should look for. When you inspect your basin, you will be looking for similar types of conditions as shown in the pictures. If these conditions are encountered, you will need to perform maintenance and re-plant/re-seed the required vegetation.

You can always contact a professional to help with your maintenance plan if you feel unsure about the exact maintenance needed for your BMPs.



Native Plant Photo Sources

Adam's-needle Yucca

Rebekah D. Wallace, University of Georgia, Bugwood.org

Robert Vidéki, Doronicum Kft., Bugwood.org

Arrowwood

Troy Evans, Great Smoky Mountains National Park, Bugwood.org

James H. Miller & Ted Bodner, Southern Weed Science Society, Bugwood.org

Bald Cypress

Paul Wray, Iowa State University, Bugwood.org

Chris Evans, University of Illinois, Bugwood.org

Bayberry

coldstreamfarm.net

K M, NC State Extension, plants.ces.ncsu.edu

Bearberry

Mary Ellen (Mel) Harte, Bugwood.org

Dave Powell, USDA Forest Service (retired), Bugwood.org

Bee-balm

Charles T. Bryson, USDA Agricultural Research Service, Bugwood.org

Jerry A. Payne, USDA Agricultural Research Service, Bugwood.org

Big Bluestem

Chris Evans, University of Illinois, Bugwood.org

Pat Sauer, Iowa Stormwater Education Partnership, Bugwood.org

Black Gum

Chris Evans, University of Illinois, Bugwood.org

Franklin Bonner, USFS (ret.), Bugwood.org

Blazing Star

Becca MacDonald, Sault College, Bugwood.org

Beverly Turner, Jackson Minnesota, Bugwood.org

Blue Spruce

Paul Wray, Iowa State University, Bugwood.org

Robert Vidéki, Doronicum Kft., Bugwood.org

Blue Vervain

Ohio State Weed Lab, The Ohio State University, Bugwood.org

Ohio State Weed Lab, The Ohio State University, Bugwood.org

Blueberry/Cranberry

Chris Schnepf, University of Idaho, Bugwood.org

Scott Bauer, USDA Agricultural Research Service, Bugwood.org

Blue-eyed Grass

David Stephens, Bugwood.org

Dave Powell, USDA Forest Service (retired), Bugwood.org

Boneset

Rob Routledge, Sault College, Bugwood.org

Bottle Gentian

Katy Chayka, www.minnesotawildflowers.info, Bugwood.org

Steven Katovich, USDA Forest Service, Bugwood.org

Bottlebrush Grass

Chris Evans, University of Illinois, Bugwood.org

Rob Routledge, Sault College, Bugwood.org

Box Elder

Paul Wray, Iowa State University, Bugwood.org

Robert Videki, Doronicum Kft., Bugwood.org

Broomsedge Bluestem

John M. Randall, The Nature Conservancy, Bugwood.org

James H. Miller, USDA Forest Service, Bugwood.org

Brown Eyed Susan

Peter Dziuk, Minnesota Department of Agriculture, Bugwood.org

Cardinal Flower

John D. Byrd, Mississippi State University, Bugwood.org

Cherry Birch

Richard Webb, Bugwood.org

Rob Routledge, Sault College, Bugwood.org

Chokeberry

xinyiflowers.com

www.rhs.org.uk

Common Elderberry

Peter M. Dziuk, minnesotawildflowers.info

Common Sneezeweed

Beverly Turner, Jackson Minnesota, Bugwood.org

Elmer Verhasselt, Bugwood.org

Creamy Violet

illinoiswildflowers.info

Culver's Root

Pat Sauer, Iowa Stormwater Education Partnership, Bugwood.org

David Cappaert, Bugwood.org

Eastern Redcedar

Paul Wray, Iowa State University, Bugwood.org

Flat-topped Aster

Peter Dziuk, Anoka County, https://www.minnesotawildflowers.info

K. Chayka taken, Anoka County, https://www.minnesotawildflowers.info

Golden Ragwort

newmoonnursery.com

piedmontgardener.com

Goldenrod

Karan A. Rawlins, University of Georgia, Bugwood.org

Richard A. Howard, hosted by the USDA-NRCS PLANTS Database

Gray Dogwood

Les Mehrhoff, discoverlife.org

Sheryl Pollock, discoverlife.org

Great Blue Lobelia

Rob Routledge, Sault College, Bugwood.org

Katy Chayka, www.minnesotawildflowers.info, Bugwood.org

Green Ash

Kara A. Rawlins, University of Georgia, Bugwood.org

Franklin Bonner, USFS (ret.), Bugwood.org

Green-headed Coneflower

swcoloradowildflowers.com

Hackberry

Paul Wray, Iowa State University, Bugwood.org

Chris Evans, University of Illinois, Bugwood.org

Hairy Woodrush

Peter M. Dziuk, minnesotawildflowers.info

Indian Grass

Karan A. Rawlins, University of Georgia, Bugwood.org

Amy Kay, City of Cedar Falls, Bugwood.org

Inkberry

Chris Evans, University of Illinois, Bugwood.org

Jack Pine

Joseph O'Brien, USDA Forest Service, Bugwood.org

Paul Wray, Iowa State University, Bugwood.org

Joe-Pye Weed

rocksolidlandscape.com

Kentucky Coffeetree

Larch

Bill Cook, Michigan State University, Bugwood.org

Maple-leaved Waterleaf

R.W. Smith, Wildflower Center Digital Library, wildflower.org

http://botanicallyinclined.org

Marginal Wood Fern

Chris Evans, University of Illinois, Bugwood.org

Marsh Marigold

Joseph O'Brien, USDA Forest Service, Bugwood.org

Meadow Phlox

mountvenusnursery.com

Gijs Haverkamp, esveld.nl

Meadowsweet

Rob Routledge, Sault College, Bugwood.org

Mock Orange
Dow Gardens, Dow Gardens, Bugwood.org
Richard Webb, Bugwood.org

Monkey Flower
Peter Dziuk, Minnesota Department of Agriculture, Bugwood.org

New England Aster
Pennsylvania Department of Conservation and Natural Resources - Forestry, Bugwood.org
Harlan B. Herbert, Bugwood.org

New York Ironweed
Karan A. Rawlins, University of Georgia, Bugwood.org

Ninebark
Rob Routledge, Sault College, Bugwood.org
Richard Webb, Bugwood.org

Northern Blue Flag
Rob Routledge, Sault College, Bugwood.org
Elmer Verhasselt, Bugwood.org

Oxeye
Karan A. Rawlins, University of Georgia, Bugwood.org

Purple Bergamot
Harlan B. Herbert, Bugwood.org
Katy Chayka, www.minnesotawildflowers.info, Bugwood.org

Red Oak
Paul Wray, Iowa State University, Bugwood.org

Rosebay Rhododendron
Chris Evans, University of Illinois, Bugwood.org
Dow Gardens , Dow Gardens, Bugwood.org

Sea Lavender
Joy Viola, Northeastern University, Bugwood.org

Sea Thrift
Joy Viola, Northeastern University, Bugwood.org
Dow Gardens, Dow Gardens, Bugwood.org

Sensitive Fern
Chris Evans, University of Illinois, Bugwood.org

Serviceberry
Doug Doohan, Ohio State University/OARDC, Bugwood.org
John Ruter, University of Georgia, Bugwood.org

Silky Dogwood
Will Cook, carolinanature.com

Snowberry or Coralberry
Dave Powell, USDA Forest Service (retired), Bugwood.org

Spicebush
Vern Wilkins, Indiana University, Bugwood.org
Chris Evans, University of Illinois, Bugwood.org

Spiderwort
Karan A. Rawlins, University of Georgia, Bugwood.org

Spreading Jacob’s Ladder
Chris Evans, University of Illinois, Bugwood.org

Sumac
missouribotanicalgarden.org
Robert Vidéki, Doronicum Kft., Bugwood.org

Swamp Milkweed
David Cappaert, Bugwood.org
Ohio State Weed Lab, The Ohio State University, Bugwood.org

Swamp Rose Mallow
Rebekah D. Wallace, University of Georgia, Bugwood.org

Sweetbay Magnolia
Charles T. Bryson, USDA Agricultural Research Service, Bugwood.org
T. Davis Sydnor, The Ohio State University, Bugwood.org

Tall Meadow Rue
Chris Evans, University of Illinois, Bugwood.org

Tall Sunflower
Joseph LaForest, University of Georgia, Bugwood.org

Tall Tickseed
Rob Routledge, Sault College, Bugwood.org
James H. Miller & Ted Bodner, Southern Weed Science Society, Bugwood.org

Virginia Bluebells
David Cappaert, Bugwood.org
Charles T. Bryson, USDA Agricultural Research Service, Bugwood.org

White Ash
Paul Wray, Iowa State University, Bugwood.org
Keith Kanoti, Maine Forest Service, Bugwood.org

White Beardtongue
Pat Sauer, Iowa Stormwater Education Partnership, Bugwood.org

White Bergamot
Vern Wilkins, Indiana University, Bugwood.org

White Oak
Paul Wray, Iowa State University, Bugwood.org

White Spruce
Paul Wray, Iowa State University, Bugwood.org
Joseph OBrien, USDA Forest Service, Bugwood.org

White Turtlehead
James Henderson, Golden Delight Honey, Bugwood.org

Wild Geranium
Patricia M. Ciesla, Forest Health Management International, Bugwood.org
Karan A. Rawlins, University of Georgia, Bugwood.org

Wild Hydrangea
John Ruter, University of Georgia, Bugwood.org
Charles T. Bryson, USDA Agricultural Research Service, Bugwood.org

Wild Rye
www.illinoiswildflowers.info

Willow
Paul Wray, Iowa State University, Bugwood.org

Winterberry
David Lee, Bugwood.org
Richard Webb, Bugwood.org

Witchhazel
Paul Wray, Iowa State University, Bugwood.org
Bill Cook, Michigan State University, Bugwood.org

Woodland Sunflower
Catherine Herms, The Ohio State University, Bugwood.org
Rebekah D. Wallace, University of Georgia, Bugwood.org

Invasive Plant Photo Sources

Amur Maple

Dow Gardens, Bugwood.org

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Bee-Bee Tree

Pat Breen, Oregon State University, <http://oregonstate.edu/dept/ldplants/index.htm>

Beefsteak Plant

Marisa Williams, University of Arkansas, Fayetteville, Bugwood.org

Chris Evans, University of Illinois, Bugwood.org

Black, Brown and Spotted Knapweed

Rob Routledge, Sault College, Bugwood.org

Bradford Pear

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Chuck Barger, University of Georgia, Bugwood.org

Brazilian Waterweed

Graves Lovell, Alabama Department of Conservation and Natural Resources, Bugwood.org

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Bristled Knotweed

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Bull Thistle

John Cardina, The Ohio State University, Bugwood.org

Britt Slattery, US Fish and Wildlife Service, Bugwood.org

Burning Bush

Richard Gardner, UMES, Bugwood.org

Butterfly Bush

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Dow Gardens, Dow Gardens, Bugwood.org

Canada Thistle

Jan Samanek, Phytosanitary Administration, Bugwood.org

Carolina Fanwort

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Cheatgrass

Tom Heutte, USDA Forest Service, Bugwood.org

Chris Evans, University of Illinois, Bugwood.org

Chinese and Japanese Wisteria

James H. Miller & Ted Bodner, Southern Weed Science Society, Bugwood.org

Joseph LaForest, University of Georgia, Bugwood.org

Chinese Silvergrass

Chris Evans, University of Illinois, Bugwood.org

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Chocolate Vine

James H. Miller, USDA Forest Service, Bugwood.org

Chris Evans, University of Illinois, Bugwood.org

Common and Bogleaf Periwinkle

Dan Tenaglia, Missouriplants.com, Bugwood.org

James H. Miller, USDA Forest Service, Bugwood.org

Common Bamboo

Chuck Barger, University of Georgia, Bugwood.org

Common Buckthorn

Jan Samanek, Phytosanitary Administration, Bugwood.org

John M. Randall, The Nature Conservancy, Bugwood.org

Common Reed

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Caleb Slemmons, National Ecological Observatory Network, Bugwood.org

Common Velvet Grass

Forest and Kim Starr, Starr Environmental, Bugwood.org

John M. Randall, The Nature Conservancy, Bugwood.org

Cork-Trees

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Crown Vetch

Dan Tenaglia, Missouriplants.com, Bugwood.org

UAF Cooperative Extension, University of Alaska - Fairbanks, Bugwood.org

Curly Pondweed

Chris Evans, University of Illinois, Bugwood.org

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Dame's Rocket

Richard Gardner, UMES, Bugwood.org

David Cappaert, Bugwood.org

Didymo

Mark S. Hoddle, University of California - Riverside, Bugwood.org

David Perez, Bugwood.org

Doublefile Viburnum

Denise Ellsworth, The Ohio State University, Bugwood.org

Dow Gardens, Dow Gardens, Bugwood.org

Empress or Princess Tree

Jil Swearingen, USDI National Park Service, Bugwood.org

Great Smoky Mountains National Park Resource Management, USDI National Park Service, Bugwood.org

English Ivy

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

James H. Miller, USDA Forest Service, Bugwood.org

Eurasian Water-milfoil

Chris Evans, University of Illinois, Bugwood.org

European Black Alder

Robert Videki, Doronicum Kft., Bugwood.org

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

European Water Chestnut

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Floating Primrose-willow

John M. Randall, The Nature Conservancy, Bugwood.org

Graves Lovell, Alabama Department of Conservation and Natural Resources, Bugwood.org

Garlic Mustard

Chris Evans, University of Illinois, Bugwood.org

Giant Hogweed

Robert Vidéki, Doronicum Kft., Bugwood.org

USDA APHIS PPQ - Oxford, North Carolina, Bugwood.org

Glossy Buckthorn

Rob Routledge, Sault College, Bugwood.org

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Goat's Rue

USDA APHIS PPQ - Oxford, North Carolina, Bugwood.org

Steve Dewey, Utah State University, Bugwood.org

Goutweed

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Greater Celandine

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Guelder Rose

Dow Gardens, Dow Gardens, Bugwood.org

Hydrilla

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Japanese and European Barberry

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Japanese and Giant Knotweed

Chris Evans, University of Illinois, Bugwood.org

Jan Samanek, Phytosanitary Administration, Bugwood.org

Japanese Angelica Tree

John Ruter, University of Georgia, Bugwood.org

T. Davis Sydnor, The Ohio State University, Bugwood.org

Japanese Honeysuckle

Chris Evans, University of Illinois, Bugwood.org

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Japanese Hops

Chris Evans, University of Illinois, Bugwood.org

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Japanese Pachysandra

Rob Routledge, Sault College, Bugwood.org

Karan A. Rawlins, University of Georgia, Bugwood.org

Japanese Spiraea

UConn Plant Database, Bugwood.org

James H. Miller, USDA Forest Service, Bugwood.org

Japanese Stilt Grass

Chuck Barger, University of Georgia, Bugwood.org

Bruce Ackley, The Ohio State University, Bugwood.org

Jetbead

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Jimsonweed

Bruce Ackley, The Ohio State University, Bugwood.org

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Kudzu

David J. Moorhead, University of Georgia, Bugwood.org

David J. Moorhead, University of Georgia, Bugwood.org

Lesser Celandine

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Linden Viburnum

Doug Manning, National Park Service, Bugwood.org

Dave Powell, USDA Forest Service

Mile-a-Minute

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Mimosa

Lesley Ingram, Bugwood.org
Chuck Barger, University of Georgia, Bugwood.org

Moneywort

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Chris Evans, University of Illinois, Bugwood.org

Multiflora Rose

Rob Routledge, Sault College, Bugwood.org
James H. Miller, USDA Forest Service, Bugwood.org

Musk Thistle

Dan Tenaglia, MissouriPlants.com, Bugwood.org

Narrowleaf Bittercress

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Narrow-Leaved cattail

Theodore Webster, USDA Agricultural Research Service, Bugwood.org
Rob Routledge, Sault College, Bugwood.org

Norway Maple

Jan Samanek, Phytosanitary Administration, Bugwood.org

Orange Daylily

Dan Tenaglia, MissouriPlants.com, Bugwood.org
Britt Slattery, US Fish and Wildlife Service, Bugwood.org

Oriental Bittersweet

Nancy Loewenstein, Auburn University, Bugwood.org
Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Pale and Black Swallow-Worts

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org
Theodore Webster, USDA Agricultural Research Service, Bugwood.org

Paper Mulberry

John Ruter, University of Georgia, Bugwood.org
Chris Evans, University of Illinois, Bugwood.org

Parrot Feather Watermilfoil

Nancy Loewenstein, Auburn University, Bugwood.org

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Poison Hemlock

Ohio State Weed Lab, The Ohio State University, Bugwood.org
John D. Byrd, Mississippi State University, Bugwood.org

Porcelain Berry

Jill Swearingen, USDI National Park Service, Bugwood.org

Privets

Karan A. Rawlins, University of Georgia, Bugwood.org
Richard Webb, Bugwood.org

Purple Loosestrife

John D. Byrd, Mississippi State University, Bugwood.org
Bernd Blossey, Cornell University, Bugwood.org

Ravenna Grass

Joseph M. DiTomaso, University of California - Davis, Bugwood.org
The Nature Conservancy, The Nature Conservancy, Bugwood.org

Reed Canary Grass

Chris Evans, University of Illinois, Bugwood.org
Mark Frey, The Presidio Trust, Bugwood.org

Rough Bluegrass

Graham Calow, Sapcote, NatureSpot.org
wildseed.co.uk

Russian and Autumn Olive

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org
Paul Wray, Iowa State University, Bugwood.org

Shattercane

Howard F. Schwartz, Colorado State University, Bugwood.org
Forest and Kim Starr, Starr Environmental, Bugwood.org

Shrub Honeysuckles

Chris Evans, University of Illinois, Bugwood.org
Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Shrub Lespedezas

James H. Miller, USDA Forest Service, Bugwood.org
Chris Evans, University of Illinois, Bugwood.org

Siberian Elm

Tom DeGomez, University of Arizona, Bugwood.org
John M. Randall, The Nature Conservancy, Bugwood.org

Small Carpetgrass

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Smallflower and Hairy Willow-herbs

Karan A. Rawlins, University of Georgia, Bugwood.org
Rob Routledge, Sault College, Bugwood.org

Star-of-Bethlehem

Richard Gardner, UMES, Bugwood.org
Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Sycamore Maple

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Tall Fescue

James Miller & Ted Bodner, Southern Weed Science Society, www.invasive.org

www.forestventure.com

Tree of Heaven

Chuck Barger, University of Georgia, Bugwood.org

Richard Gardner, UMES, Bugwood.org

Wavyleaf Basketgrass

Rebekah D. Wallace, University of Georgia, Bugwood.org

Kerrie L. Kyde, Maryland Department of Natural Resources, Bugwood.org

White Mulberry

John M. Randall, The Nature Conservancy, Bugwood.org

Ohio State Weed Lab, The Ohio State University, Bugwood.org

Wild Chervil

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Wild Parsnip

Ohio State Weed Lab, The Ohio State University, Bugwood.org

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Wineberry (Wine Raspberry)

Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Winter Creeper

James H. Miller, USDA Forest Service, Bugwood.org

Yellow Flag Iris

Todd Pfeiffer, Klamath County Weed Control, Bugwood.org

Nancy Loewenstein, Auburn University, Bugwood.org

Additional Resources/Other Sources

Pennsylvania Stormwater Best Management Practices Manual
www.elibrary.dep.state.pa.us/dsweb/View/Collection-8305

Lancaster County Clean Water Consortium
www.lccwc.com

United States Environmental Protection Agency
www.epa.gov

Pennsylvania Department of Environmental Protection
www.dep.pa.gov

Lancaster County Conservation District
www.lancasterconservation.org

LandStudies, Inc.
www.landstudies.com

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