Golf Course Conservation

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MONTGOMERY COUNTY CONSERVATION DISTRICT

The Conservation District

Our mission is to protect and improve the quality of life of the residents of Montgomery County and surrounding communities by providing, in cooperation with others, timely and efficient service, education, and technical guidance, for the wise use of our soil, water, and related resources.

- Districts formed nationwide after Dust Bowl
- Work on the local level to protect and conserve soil and water resources

Who Works with Districts?

- State and federal agencies
- Municipalities
- Developers
- Schools
- Community organizations
- Conservation nonprofits
- Private landowners (residential neighborhoods, farmers, businesses)
- Utilities

An Environmental Focus

- Water Quality and Quantity
- Soil Health and Stabilization

The number one concern for water quality in our region is sediment pollution, followed by nutrients: phosphorous and nitrogen.

Golf Course Concerns

What are your main concerns when it comes to managing a course?

- Playability?
- Aesthetics?
- Ease/Cost of Maintenance?
- Environmental Impact?

Photo Credit: Target Golf Management

Potential Environmental Impacts from Golf Courses

- Water pollution
  - Nutrient overload (Phosphorus and Nitrogen)
  - Herbicide/pesticide
- Soil erosion leading to sediment pollution
- Stormwater runoff
  (Flooding and increased flow to stream)
- Thermal impacts (lack of tree canopy)
- Habitat reduction
- Impacts drinking water sources and recreation

Assessing the Course

- Identify “environmentally sensitive areas”
  - Streams, lakes, ponds, wetlands
  - Wellheads
  - Habitat areas (T&E Species)
- Survey naturalized area vs. managed areas
- Survey topography – drainage patterns, areas prone to erosion
- Identify flood-prone areas
- Inventory vegetation species or type

Best Management Practices “BMPs”

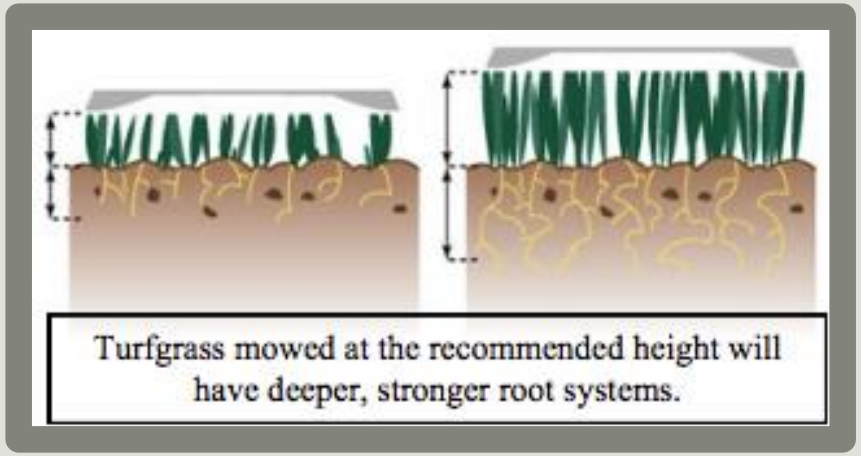
- BMPs are cost-effective practices that are implemented to prevent or minimize pollution
- Can be structural (*e.g.* installing new equipment) or behavioral (*e.g.* making a shift in maintenance practice)
- Designed to reduce maintenance, save money and improve aesthetics

Golf Course BMPs: Erosion & Sediment Control

- Always stabilize bare soil as soon as possible after a disturbance
- Implement sediment control (such as compost filter sock) during construction activities
- Larger earth disturbance activities may require a formal plan to be reviewed by the Conservation District
- Be wary of earth disturbance activities near waterways; a permit may be required
- Always call your Conservation District with any questions BEFORE getting started

Golf Course BMPs: Fertilizer and Other Nutrients

- Maintaining turf at reasonable heights to prevent excess stress on the plant will reduce the need for fertilizer to maintain a lush turf course
- Soil fertilizer application rates should always be based on current soil test analyses
  - N,P,K & micronutrient requirements
  - Soil organic matter
  - Soil pH
  - Soil structure/aeration
- Consider slow-release fertilizer for established turf



Weed and Feed Lawn Care

Golf Course BMPs: Chemical Application

- Practicing integrated pest management (IPM) more effectively manages pests and reduces reliance on harmful pesticides
- Implement no-spray zones near water bodies and spot treat when possible
- Manage non-native invasive species, especially those on the “Noxious Weeds” list
- Know what is a weed and what is an important native plant!
- Follow state laws for pesticide application

Golf Course BMPs: Chemical Storage

- Proper chemical storage ensures safety of workers and the environment
  - Prevents groundwater, surface water and soil contamination
  - Reduces air pollution by chemical drift
  - Prevents costly cleanup from spills
  - Provides adequate ventilation
- Proper chemical mixing areas should be utilized
  - Concrete sump or lip to contain material
  - Store chemicals in original containers with labels
  - Dispose of materials properly

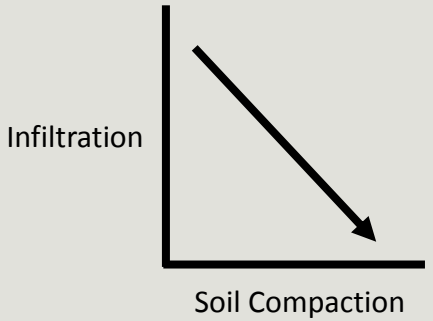
Best Management Practices for New York State Golf Courses

Golf Course BMPs: Equipment Washing Station

- Establish a designated area to wash equipment
- Make sure sediment, grass clippings, soap, etc. do not wash into a waterway, storm drain, or environmentally sensitive area
- Impervious wash pads may be installed to collect wash water for treatment via:
  - Sanitary sewer/off-site treatment
  - Closed loop system for re-use/on-site treatment
  - Rain garden or other bioinfiltration area
- Try using biodegradable detergents
- Keep pesticide separate!

Golf Course BMPs: Water Conservation – Smart Irrigation

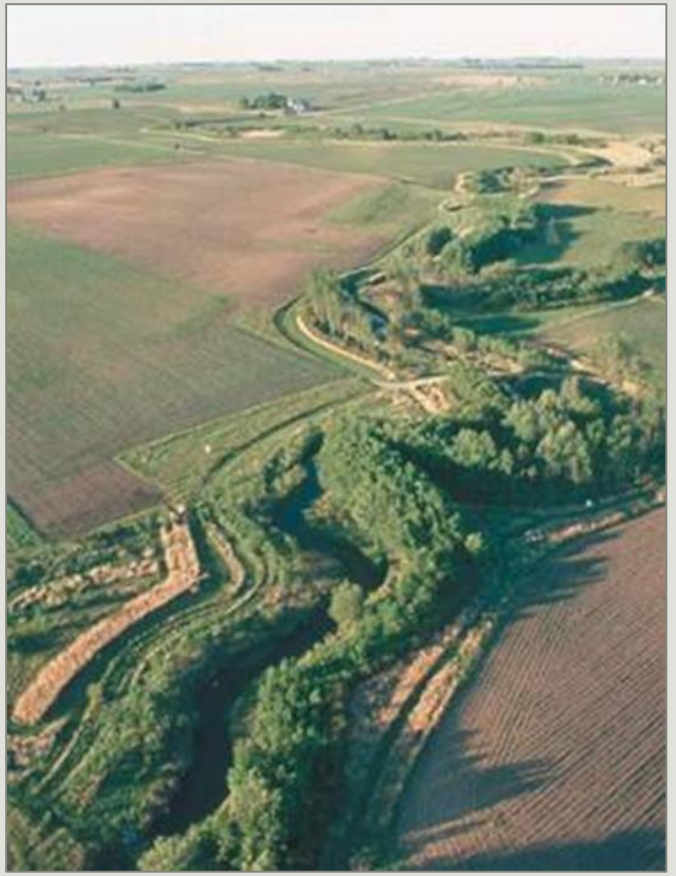
- Install smart irrigation systems (low-volume sprinklers, rain and other sensors, adjustable nozzles, automatic systems)
- Perform targeted watering where possible
- Use a cistern for capture and reuse
- Water Conservation Practices:
  - Reduce runoff and leaching to surface water and groundwater
  - Reduce demand on water wells in drought
  - Provide water to vegetation at peak uptake times
- Soil compaction inversely correlates with infiltration

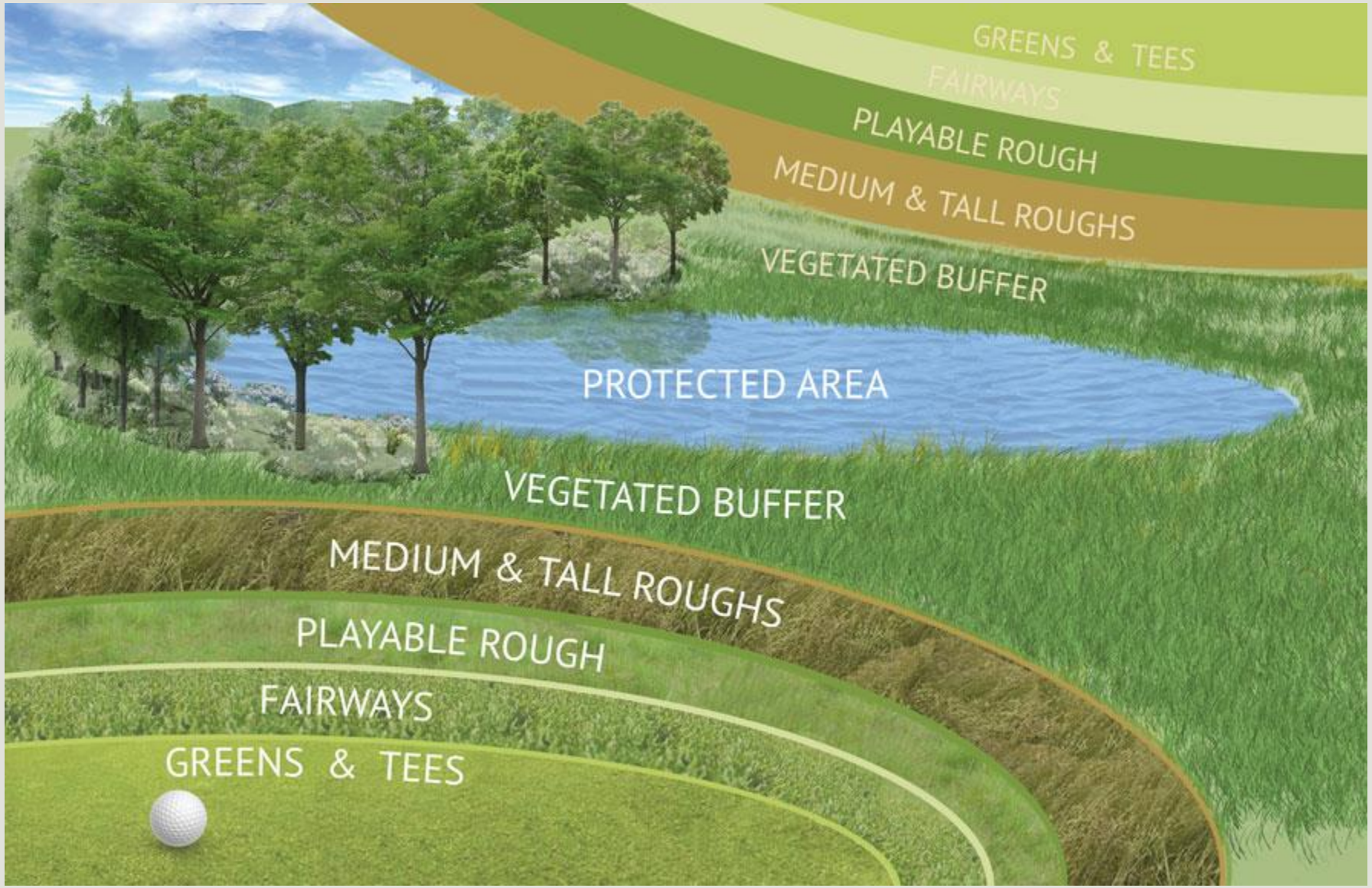


What does a healthy stream look like?

Golf Course BMPs: Riparian Buffers

- Vegetated area along streams or ponds
- Slows down runoff to prevent erosion and settle out pollutants
- Plants and soil soak up flood water to protect in-play areas
- Deep root systems stabilize streambanks
- Plants shade stream and provide leaf litter to support aquatic ecosystems
- Provides recreational, air quality and health benefits for surrounding communities
- Never dump grass clippings or prunings in these areas; consider composting





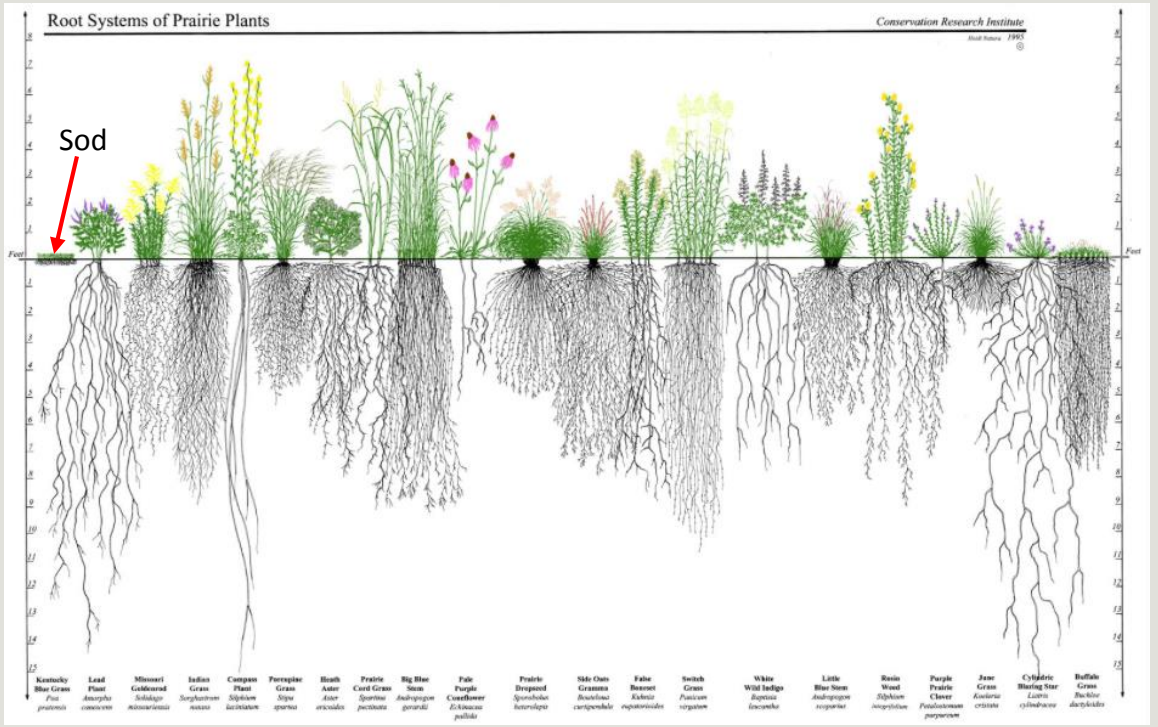
Best Management Practices for New York State Golf Courses

Golf Course BMPs: Following Setbacks

- Determine acceptable setbacks from streams and other environmentally sensitive areas (as wide as possible)
- Mark mowing/fertilizing limit with stakes, flags or fencing
- Consider adding native plantings to improve the area, as well as signage to educate golfers
- Vegetation can also deter geese and reduce algae

Golf Course BMPs: Use Native Plants

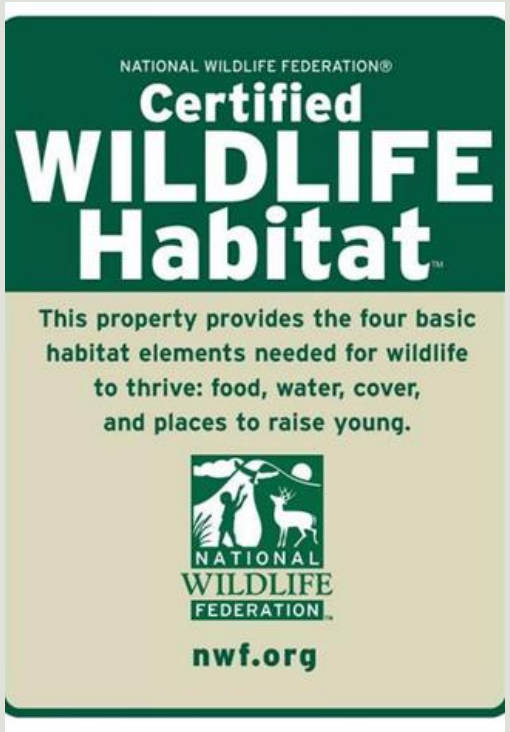
- Native plants are adapted to thrive in our climate
- Require minimal maintenance
- Provide habitat and food for beneficial wildlife and pollinators
- Require reduced irrigation and pest control – saving time and money
- Provide increased aesthetic appeal



Golf Course BMPs: Increase Naturalized Areas

- Establish No-Mow/Low-Mow areas in non-play areas, especially along waterways
  - Minimize maintenance
  - Slow and absorb runoff
  - Reduce irrigation needs
  - Filter pollutants/nutrient runoff
  - Enhance aesthetic appeal
  - Provide beneficial pollinator and wildlife habitat

Golf Course BMPs: Encourage Beneficial Wildlife



- Plant native wildflowers
- Control invasive species
- Connect habitat areas to increase wildlife ranges
- Install bird houses and bat boxes
- Mow meadows once a year when birds are not nesting
- Leave debris to decompose naturally
- Install signage

Golf Course BMPs: Stormwater Management

- Sometimes more engineered techniques are necessary to slow and treat runoff (detention basin, rain garden, infiltration trench)
- See PA Stormwater BMP Manual
- Retention ponds are often used for irrigation
- Contact your Conservation District for technical assistance

TreeVitalize Watersheds Grants

Montgomery, Bucks, Chester and Delaware in SEPA program

DCNR has grants for other parts of the state

Funding to pay for plants (80% trees), site prep and supplies

Grantee must have Tree Tender or equivalent training

Trees must be planted by volunteers

TreeVitalize
A partnership to restore tree cover in Pa. communities
www.treevitalize.net

PLANT ONE MILLION
3 states. 13 counties. 1 tree at a time.

PHS

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

AQUA Pennsylvania

How We Can Help

- Technical assistance
  - Inventory and evaluation of resource concerns on your course
  - Assistance with soil testing and nutrient planning
  - Suggestions for BMP installation
  - Assistance with project coordination and installation
  - Assistance with grant funding opportunities
- Wealth of educational resources
- Access to numerous partner agencies with varying expertise

www.MontgomeryConservation.org/other-programs/golf-courses

www.pacd.org www.nacdnet.org

Questions & Comments?

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