**Draft 1/21/16**

**MWEE TOPIC #1: My Watershed Address**

**ISSUE:** Everyone has a watershed address. Whether they know it or not, the rain that falls on their house or apartment building finds its way to the nearest creek, pond, or river. The water may pour from a downspout to the driveway and then to street, draining into a storm sewer intake. An underground pipe takes the water to a creek. Rain can also run through a sloping backyard to a park and a creek. The first natural body of water the runoff reaches usually is the name of the watershed address. City development buried parts of many streams; some are covered entirely. Old maps, city utility plans, and other resources can be used to discover the tributary or creek that once flowed through or near a property. Citizen knowledge of the watershed address concept is useful to efforts to modify behavior that damages local water quality.

**OUTDOOR FIELD EXPERIENCE:** Students walk the grounds of their campus, and note the orientation (east, west etc) of the topography’s slope. They create a map that includes surrounding streets, and shows in which direction runoff flows. To better understand the concept, students can either view the runoff while it’s raining, or pour jugs of water into the gutters to watch the direction of the flow.

**ACTION PROJECT:** Using a large scale map of DC that shows existing creeks and the Potomac and Anacostia Rivers, students plot their homes’ watershed address. The school’s “address” is also noted on the map. Students discuss ideas on how they can best communicate the watershed address concept in the school, at home, and in the community.

**SYNTHESIS AND CONCLUSION**: The DC “Watershed Address” map is mounted in a prominent place in the school. It is publicized through student and social media.

**INTENSIFICATION** – Students design signs that can be placed at appropriate locations on the campus to inform passersby about the school’s watershed address. Students create a timetable with accompanying maps showing the alterations off the city’s watershed network.

**ORGANIZATIONAL SOURCES OF SUPPORT** – Rock Creek Conservancy, Anacostia Watershed Society, DC Water, District Dept. of the Environment (DDOE)

**MWEE TOPIC #2: Wildlife in the City**

**ISSUE**: The diversity and prevalence of wildlife in Washington DC has changed considerably since the first colonial settlements in the seventeenth century. Some animal species disappeared due to hunting and loss of habitats, while other species were introduced and gained a solid foothold. In recent years, populations of certain native species have rebounded, and introduced wildlife has established a strong presence. Imbalances – such as a lack of top predators, and an abundance of white–tailed deer and house sparrows – are a defining characteristic of the contemporary urban wildlife tableau. What can be done to increase wildlife diversity in an urban context?

**OUTDOOR FIELD EXPERIENCE:** Students will take a walk in a nearby natural area, and each will choose one species that they see. They will take notes on its behavior, abundance, and other characteristics. They can use cellphones to photograph the animal or its habitat. Given that the species seen most likely will be common ones and limited in number, the instructor will assign other species to those students who don’t make the initial sightings. In this way, a full range of both introduced and native species -- some abundant, some not – will be included.

**ACTION PROJECT**: Working in teams, students in class will prepare posters providing a full description of their species’ present condition in Washington, DC. The posters will include information on possible actions to assist a species’ recovery (if currently in low numbers of threatened), or coping with problems created by overabundance (i.e. white-tailed deer). Students will complete one small project to increase diversity, such as planting a mini pollinator garden or native tree.

**SYNTHESIS AND CONCLUSION:**  Students will draw up a set of recommended actions to assist species recovery or cope with abundance, and present them to appropriate audiences (school, local government, homeowners). These activities can include: student presentations to their class, an outline of the components of a website on “Wildlife in DC”, or preparation of an article for the school newspaper.

**INTENSIFICATION:** Students participate in an invasive plant removal activity on the campus or nearby natural area if invasive species are present. Students prepare a report on invasive species found and methods of control.

**ORGANIZATIONAL SOURCES OF SUPPORT:** DC Audubon Society, City Wildlife, DDOE, National Park Service.

**MWEE TOPIC 3: Leaves Are Not Litter**

**(best performed in autumn)**

**ISSUE**: The widespread use of leaf blowers has led to the unnecessary “cleaning” of natural areas, causing harm to numerous mini-ecosystems. Leaf blowers allow the removal of the entire layer of leaf litter from gardens and edge areas – not just lawns and sidewalks. Blowing away everything down to the dirt removes a valuable nutrient source for the soil, deprives small animals and insects of places to live and hibernate, disturbs seed germination, and stirs up dust and pollen that can aggravate people (including the workers) with asthmatic and other respiratory problems. Noise is another problem created by the practice. Besides the gas or electricity used to power the blowers, energy is wasted by trucking out leaves and bringing back mulch not produced locally for landscaping of soil that has been stripped of natural cover.

**OUTDOOR FIELD EXPERIENCE:** Students will examine a natural area or garden that has not been cleaned of leaves in several years. After noting insect life or signs of other animals, they will collect samples of fresh leaves, decomposing leaves, humus and clay soil to create a cross sectional view in a small, clear plastic container. Each section will be labeled, and in a separate exercise, students will describe the process of decomposition, including details on how carbon, nitrogen and water interact to break down the leaf litter.

**ACTION PROJECT**: Students will survey their schoolyard and a nearby neighborhood, noting evidence blowers have been used on garden or natural areas. Students will determine whether commercial mulch is being used on the school campus, and its source.

**SYNTHESIS AND CONCLUSION:**  Students will weigh the advantages and disadvantages of the school’s use of leaf blowers and draw up a proposal to present to the administration or groundskeeper. Students can stage a classroom debate, or conduct a student poll to determine opinions on the subject.

**INTENSIFICATION: S**tudents refer to a standard formula for optimal compost production, and use it to create three different compost piles of varying proportions. Students will track and measure the effectiveness of each combination.

**ORGANIZATIONAL SOURCES OF SUPPORT:** University of the District of Columbia Agriculture Extension Service, master gardener programs.