UW- Eau Claire Environmental Strategies and Integrated Pest Management

1. Campus Amphitheater/ Oak Savanah- The campus amphitheater is designed to evoke an image of an Oak Savanah with widely spaced trees (50% or less of the total site coverage) and native prairie plants bordering the north and south edges of the lawn. The oak savannah was once the most common vegetation types in the Midwest but is today highly endangered. Intact oak savannas are now one of the rarest plant communities on earth. The trees in the amphitheater include Bur, White and Swamp White Oak, Shagbark Hickory, Buckeye, Hackberry, Kentucky Coffeetree and Basswood.

2. East of Schofield/ Northern Mixed Forest- The trees in this area represent the other Wisconsin community type found in Eau Claire County. Major tree types of this community include Maple, Hemlock, Spruce, White Pine, Red Oak and Hophornbeam.

3. Little Niagara Stream Restoration- Little Niagara Stream Restoration occurred in 2010 by the Department of Natural Resources to improve the physical, chemical, and biological functions. The restoration realized the following goals:
    - *Physical functions*: *reduction in bank erosion and a self-sustaining water and sediment movement. This was achieved through flattening and widening the channel.*
    - *Chemical function: higher water quality and greater removal of impurities as the water flows through the channel.*
    - *Biological function: an expansion of habitat for diverse species, such as fish, aquatic insects, and other wildlife.*

    As a part of the restoration, a prairie was established on the North side of the stream between bridges 2 and 3 (North of the Davies Student Center). The rest of the creek maintains a natural edge and the grasses are cut to a 4-5" height to allow for access of the creek.

4. Campus Prairie Remnant- (upper campus) With the assistance of the departments of Biology and Geography , students and the grounds crew have cleaned out invasives and are maintaining the prairie remnant on upper campus. We cut back the edges of the prairie with a deck mower each fall to keep the black locust and honeysuckle in check.

5. Bioswales- Rain gardens, bioswales and bio-basins are simple landscaping features used to slow, collect, infiltrate, and filter stormwater. Differences between these systems are subtle and the terms often are used interchangeably to describe systems that achieve the end goal of reducing stormwater runoff and improving stormwater quality. Rain gardens use loamy soil and is depressed in the landscape (Water Street, Bollinger Fields). Bioswales are composed of a vegetative layer, sandy soil layer (engineered soil), a coarser soil layer, and a stone bottom layer (Garfield, Nursing, The Suites, Davies Center west and the Welcome Center). Bio-basins are more engineered solution consisting of concrete sides with cutouts to direct water to an engineered soil base (Centennial South).

6. Davies Green Roof – Davies green roof is an extensive green roof which means the depth of soil is 3-5 inches. It is vegetated with succulents, sedums, and prairie plant species, does not require

irrigation and is low maintenance requiring only occasional weeding of volunteer weeds. Overflow is released through scuppers to the gardens surrounding the building below.

7. No Mow Fescue- No mow fescue is used as much as possible on campus to reduce hand mowing in steeper and hard to maintain areas. The grass grows to a height of 6 inches and falls over to form a nice, thick sod. It is shade and sun tolerant and is useful for any area that is not subject to high foot traffic. Areas on campus that are planted with no mow fescue include: Davies mounds, NE Corner of Phillips Hall, the south platform of the footbridge (both sides) , the base of the hill along the Garfield Avenue corridor and the Welcome Center on the south side bordering the creek.

8. Permeable Pavers- Permeable pavers are located in the surrounding area of the Sprite Sculpture in the center of lower campus, the southeast patio of the new Welcome Center, and on upper campus on the east side of Sutherland Hall. We would like to incorporate additional areas on campus but are somewhat restricted due to snow removal operations in the winter and the susceptibility of the system to clogging by sand and salt.

9. Silva Cells- Modular suspended pavement system that uses soil volumes to support large tree growth and provide powerful on-site stormwater management through absorption evapotranspiration and interception. Four trees are planted in these cells along Garfield Avenue in the Chippewa Terrace.

10. Smart Water Irrigation – On site smart irrigation controllers monitor weather, moisture content in the soil, evaporation, and plant water use to automatically adjust the watering schedule to actual conditions of the site. They can be controlled with a smart phone or iPad and responded to off site. We try to maintain 1 inch of water per week on irrigated turf. If rainfall exceeds 1 inch, we turn off the irrigation systems which allows the soil to dry down. By not overwatering, we lessen our chances for diseases such as fungus to set in.

11. Biological Turf Management- Biological Turf Management combines the best of conventional and organic methods with an emphasis on attaining naturally productive soils that display a high level of biological activity. We use a fertilizer that is calcium based with organic additives such as chicken manure. This is different from synthetic fertilizer blends on the market. This is a slow-release system with less chance for burning, “spikes” in the growth at application and other nutrients being “tied up” in the system. Biological fertilizer focusses on feeding the soil, versus making the top of the grass grow. Annual soil aeration occurs on turf areas to counter the effects of soil compaction.

12. Mowing- We mow most turf at 3.5 inches. Turf around the Little Niagara is mowed at 4 inches, less frequently. We mow some of the athletic turf slightly shorter than 3 inches. The benefits of mowing at three + inches include weed die out due to decreased competition from shaded root zones. Shaded root zones also require less watering.

13. Native plants- The gardeners have used native plants in strategic areas around campus. Some of the reasons for this are natives are more likely to survive ibn our hardiness zone, less likely to get diseases and pests and generally require less water when established. We also combat weeds through layered planting and mulching.

14. Integrated Pest Management-we manually pull weeds in the landscape beds on campus and minimally use target herbicide/Insecticide for things like broad leaf weeds in turf, Japanese beetle control and tree injections to preserve a group of Green Ash on campus from the destruction by Emerald Ash Borer.

15. Compost Tea Applications- Grounds applies compost tea to turf and landscape beds to increase soil biological diversity. The compost tea consists of worm castings, unsulphered molasses, dechlorinated water, liquid fish emulsion and kelp and is brewed in a Geotea brewer. We generate and distribute 600- 2400 gallons of compost tea per summer.

16. Pop- Up Poplar Mini Gardens- UW- Eau Claire is participating in a 3 + year study with North Dakota State University as one of 20 test sites in North America for Pop Poplar Mini Gardens. The natural hybrids of two wide-ranging sister species – black cottonwood and balsam poplar (*P. trichocarpa x balsamifera*) will be utilized to characterize, predict, and test how hybridization produces phenotypic variation for complex adaptive traits of economic and ecological significance. The 'Mini Garden' provides the opportunity to evaluate trait variation for individual Poplar clones sourced from a range of environments. This project commenced in May 2020 with the planting of 100 bare root trees out at Bollinger fields. We hope to involve middle school students in research collection in the future.

17. Snow Removal- finding a balance of mechanical removal with the best possible chemical practices to limit the use of salt while still maintaining a safe campus. We pre- treat roads , steps, walkways, and bridges, prior to snow events, with salt brine at 23% salinity, which allows us to remove the snow with greater efficiency mechanically. We also pre- wet our rock salt to apply on areas, as needed, after snow removal has occurred. The salt is immediately activated, sticks to the pavement surfaces more efficiently and reduces the amount bouncing into the surrounding landscape. Pre-wetting allows for a 40-50% reduction in salt use on campus.