



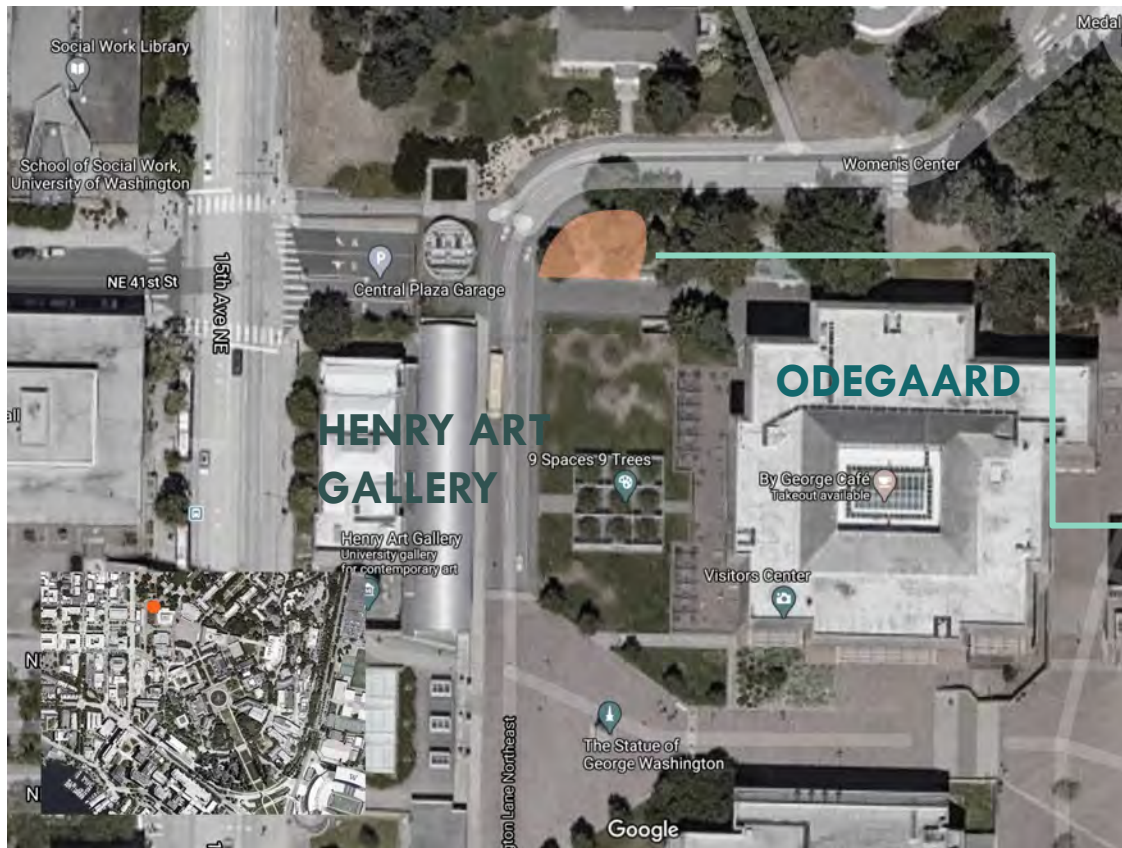
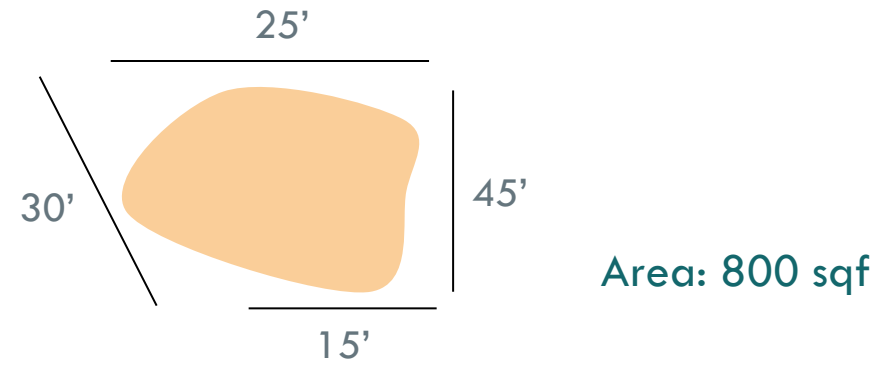
UW POWER TO THE POLLINATOR PROJECT

2020-2021

PROJECT TIMELINE

August	Early October	Mid-Late October	November + Beyond
<ul style="list-style-type: none"> Remove English ivy Following week excavate soil (about 8-12 inches deep) with shovels <ul style="list-style-type: none"> Excavate deeper for gentle rock and stone terrace along southwestern slope, create small cavities Excavate desire line 	<ul style="list-style-type: none"> Add landscape rocks and stones throughout terrace, garden, side of path to line vegetation Add coarse woody debris to protect garden from foot travel 	<ul style="list-style-type: none"> Lay down new soil throughout site Lay down broken paver pieces on path, smaller stones, Make space for educational plaque Begin to plant (make sure day is overcast, slightly rainy) 	<ul style="list-style-type: none"> Design and fabricate educational signage with UW Salvaged Wood program Regular maintenance of non-native, invasive species like Himalayan blackberry and English ivy for 2+ years (hosting small SER + CBE work parties) Water regularly with help from Norm and additional grounds crew staff (water in summer for 2+ years) Trim shrubs

SITE CONTEXT





SITE CONTEXT

- invasive English ivy
- patches of sun
- slight slope (3% sloping south)
- not inundated, not susceptible to winter flooding
- sprinkler system (will need to make sure plants do not block this)



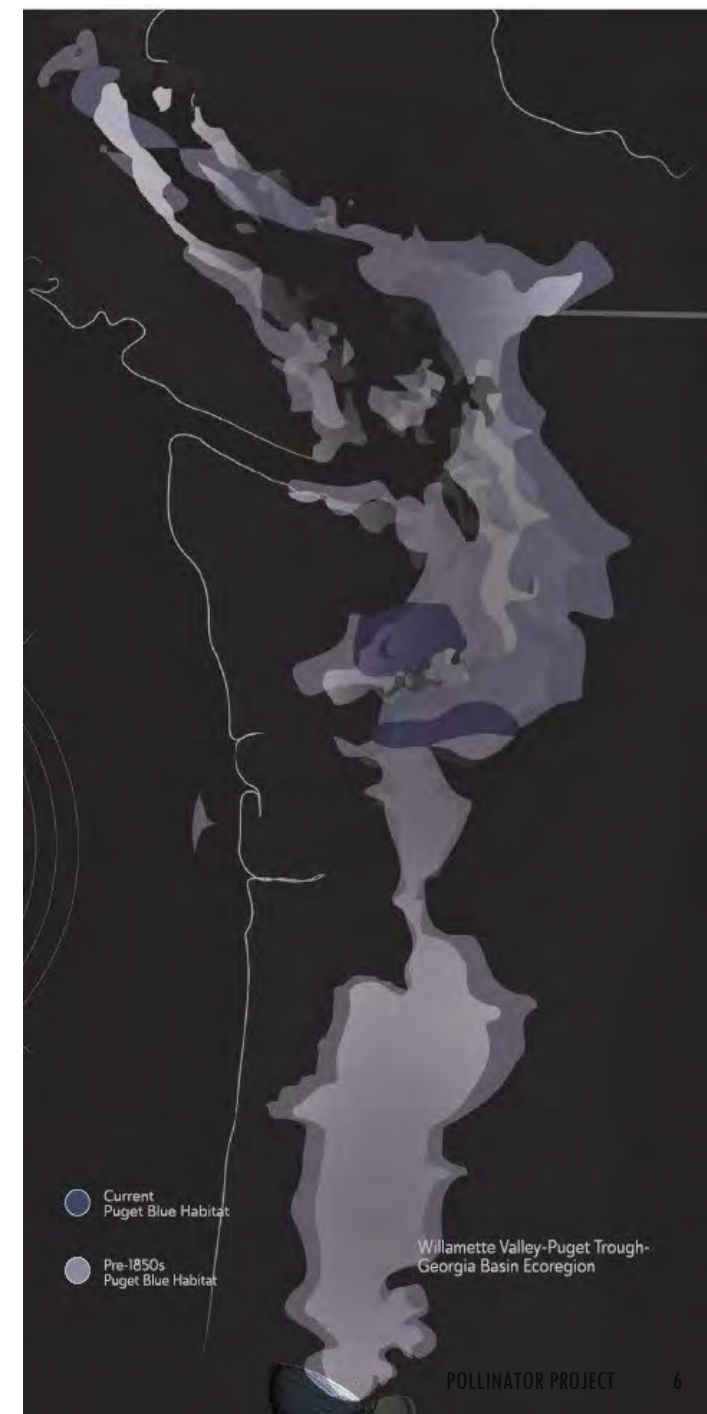
SITE CONTEXT

- site perimeter surrounded by young evergreen pines
- consider these in planting design
- pine needles may impact plant growth, provide buffer



SITE & CONTEXT ISSUES

- Former native prairie-oak ecosystem severely fragmented and endangered
- Used to provide habitat for butterflies, bees, other invertebrates
- Native prairie lands in the Puget sound region now occupy only **2.6%** of their former habitat space (pre-1850s)
- Pesticide use harms existing invertebrate population



KEY PLAYERS

BEES	Needs
Mason Bees	Pre-existing tunnels in soil, various cavities in dead wood made by emerging beetles or drills, generally more active in the morning hours
Leaf Cutter Bees	Pre-existing circular tunnels of various diameters in dead, intact wood created by emerging beetles (or hand-drilled), some nest in the ground, leave dead limbs and trees to support not just pollinators but other wildlife.
Sweat Bees	Exposed earth, compacted soil, sunny areas not covered by vegetation, forage for pollen earlier in the morning and for nectar later
Carpenter Bees	Soft dead wood, poplar, cottonwood or willow trunks and limbs, structural timbers including redwood for nests Smaller carpenter bees make cavities in pithy stems like roses
Bumble Bees	Abandoned rodent burrows, human-made cavities. Colonies are founded by a queen in the spring, worker bees active in summer-fall protecting colony and gathering pollen, new queens mate and overwinter in a hibernaculum near trees and decaying leaf litter, bumble bees are usually active during the morning hours and forage at colder temperatures than honey bees, even flying in light rain

BUTTERFLIES	Needs
Fender's Blue, Puget Blue, Taylor's Checkerspot	Evergreen, shrubby host plant for food, oviposition, shelter (plants like tufted hairgrass, sword fern, lady-fern) Flowers with bright colors (red, purple), nectar spur
BIRDS	Needs
Hummingbird	Flowers with funnel/tube and structural perch support Bright colors like scarlet, red, orange

STRATEGIES

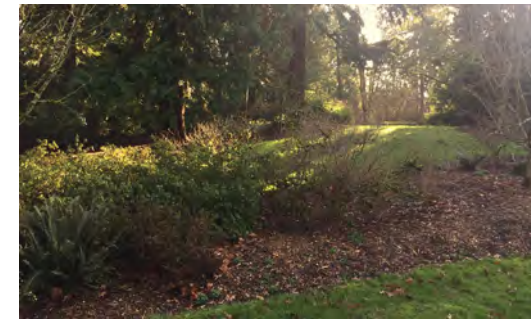
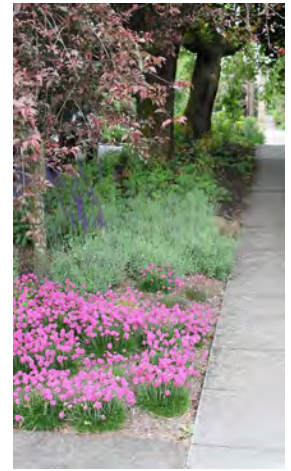
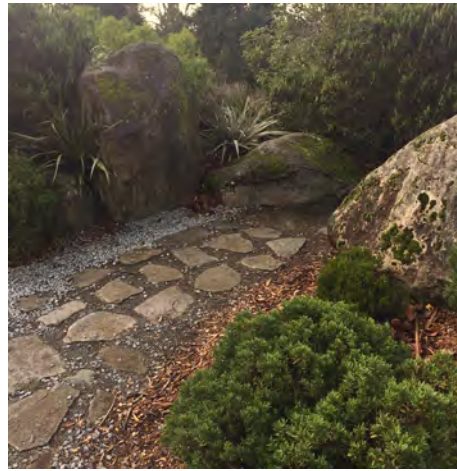
- Plant in **groupings**
 - Makes it easier for pollinators to jump back and forth
 - Aesthetically pleasing (hierarchies)
 - Robust ground-cover, will help prevent aggressive invasive plants from taking root
 - **HOST PLANTS** – relationship between specific invertebrates and plants for oviposition, food, habitat
- Emphasize versatile, robust species that can adapt to changing conditions and shifting climate zones
 - **Low maintenance, drought-tolerant, NO pesticides/herbicides required**
- Design for **BLOOM OVERLAP**, flowering from early spring to late fall, overlap plants for lush growth
- Physical structure with woody species, woody shrubs or trees to provide more consistent structure, evergreen species
 - Provide coarse woody debris for refugia and overwintering sites (leaf detritus, logs, open soil underneath pine for shelter)
- Planting beds interspersed with rocks for aesthetics, scale, consistency in winter
- Cues of Care
 - Messy is great, but **social perception** will greatly impact success of project
 - Bordering designed landscape with a defined path (dirt, rock, mulch, flagstone etc), make it look intentional
- **SHRUBS**: plant 4-8 feet apart to ensure dense hedge for pollinators to traverse
- **HERBACEOUS**: 2-4 feet apart to allow for mature growth
- hand weeding around plant bases and mulching as necessary
- Provide fruiting plants
 - Fermenting fallen fruits also provide food for bees, beetles and butterflies
 - Attract moths at night
- Spots of bare, undisturbed ground for overwintering and nesting sites
- Evergreen shrubs along border of garden to shield from pedestrians, filter pollutants, provide shelter

LONGTERM GOALS

- Enhance biodiversity within dense urban settings
- Protect native plant species and pollinators
- Foster symbiotic relationships between pollinators, plants, rodents, mycorrhizae
- Inspire community conservation practices
 - Sustainable land-ethics that value functional, productive landscapes rather than sterile and ornamental
- Lead to conversion of UW grass to pollinator habitat areas
 - i.e. parts of Rainier vista, Quad, Hub Lawn, Denny Lawn
- Defragment campus -create integrated network for range of pollinator species
- Policies requiring new development to provide NATIVE pollinator habitat (food sources, nesting habitat)
- Reduction of pesticide use – pave the way toward a ban on all pesticides

MATERIALS & REFERENCES

- Adequate soil – Cedar Grove
- stones for pathway – **local nursery or hardware place for donations or broken pieces**
- landscaping rocks (zen inspired) – **salvage from nurseries**, UW maintenance shop by UWill
- Coarse woody debris like logs – **salvage from UW maintenance shop**
- Shrubs + forbs, groundcover plants – **local nurseries, SER nursery with CSF funding + SER funding**
 - Annuals, perennials, evergreen
 - Grasses
 - Ferns
- Mulch following planting – **SER FREE**



FLORAL CHARACTERISTICS

Pollinator	Floral Color	Floral Shape	Nectar	Odor	Pollen
Bees	Bright white, yellow, blue, purple	Shallow with landing platform, tubular	Usually present	Fresh, mild, pleasant	Limited, sticky and scented
Butterflies	Bright red, purple	Narrow tube with spur, wide landing pad	Ample, hidden	Faint, fresh	Limited
Beetles	Dull white, green	Bowl-like	Sometimes present	None to strongly fruity	Ample
Flies	Pale to dark brown or purple	Shallow, funnel-like	Usually absent	Putrid	Modest
Birds	Scarlet, orange, red, white	Large, funnel-like, strong perch support	Ample, hidden	None	Modest
Moths	Pale, dull red, purple, pink, white	Regular, tubular	Ample, hidden	Strong sweet, emitted at night	Modest

BUMBLE BEE PHENOLOGY + PLANT TYPE

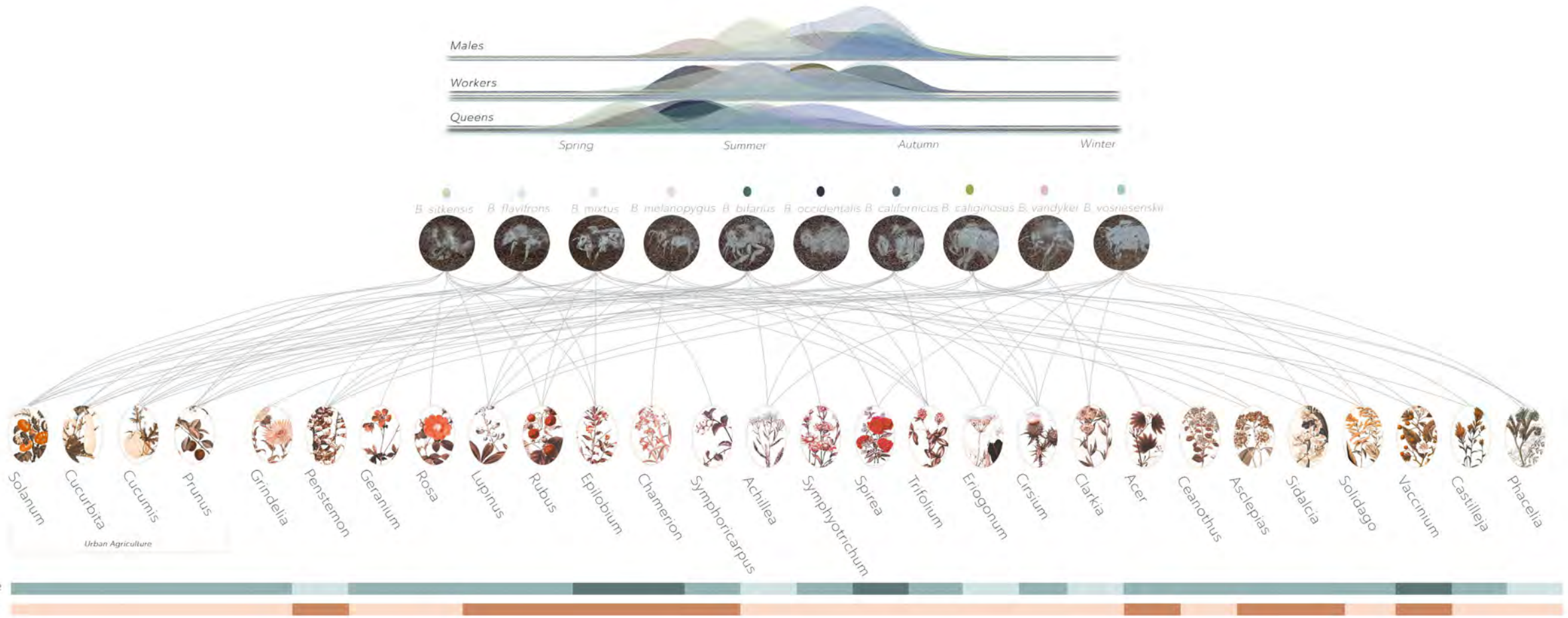


Diagram by D. Slowik

FIELD NOTES

- Possibly remove Japanese white pine – looks a bit unhealthy, appears that a neighboring white pine was removed recently
- Pine tree drops needles, could prevent plant growth unless its removed
- Soil dry and sandy in summer, will likely need new soil with organic matter and mulch





- Receives ample sunlight in summer, southern exposure
- Slight slope near southwestern edge (closest to odegard)



08/20/2020: English ivy removed from entirety of site
Coarse woody debris and leaf litter to be placed beneath Japanese white pine for habitat

INTERPRETATIVE SIGNAGE

- UW Salvaged Wood program (see example from pollinator research project)



Image source (example): Autumn Maust, IPM Manager