Pollinator Habitat Survey

Diverse and abundant floral resources have been correlated with rich and varied populations of pollinators. A healthy population of pollinators has, likewise, been associated with increased plant productivity in orchards, coffee plantations and other agroecosystems.

Native and migratory pollinators have also been shown to sustain plant productivity in areas where managed bees (principally the honey bee, Apis Mellifera and the alfalfa leaf cutter bee, Megachile Rotundata) are in decline. Further, invertebrate diversity, including pollinators, has been shown to be a marker for successful restoration in tall grass prairies.

This instrument attempts to objectively measure the success of restoration or preservation of critical pollinator habitat. It is designed to be reproducible across observers and to measure valid aspects of the successful establishment of plantings for the nutrient, shelter and larval host-species needs of pollinators.

Randomization:

The four most extreme "corners" of a site are numbered clockwise from a southern position facing north with the NE most area numbered one, and NW, SW and SE numbers 2, 3 and 4. A random number generator selects one of these corners, say for example "3", and that designates the SW corner as the starting point for the *marginal sampling zone.*

The longest axis of the site is paced out, or if it is a solar site the number of arrays (rows of panels) is counted out from south to north. A random number generator will select one of the arrays (say 35) or if not in solar field a random number of paced steps (say 247). That number will designate the starting point for a *central sampling zone.* This would mean sampling at the area in front of the 35th array or at 247 paces in a non-solar field.

Sampling:

Beginning at the corner randomly designated for the marginal sampling zone, the surveyor walks a 200 foot path along the margin measuring first the number of species present and then the abundance of flowering plants. A third pass notes the number of pollinators. This is then repeated in the central sampling zone, beginning at the site randomly designated.

Species Richness Survey:

The surveyor walks a 200 ft corridor noting the number of species of pollinator-friendly plants within a 12 foot wide corridor, roughly that which you can easily observe without leaving the path.

The absolute number of pollinator friendly plants is noted (see list). This processis performed in the marginal sampling zone and then repeated in the central sampling zone.

Pollinator-Friendly Flower Abundance

The same corridor is traversed with notation of each species that has 10 or more flowering plants in blossom in the 200 ft corridor.

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Unique Pollinator Encounters

In the same corridors with a timer, the surveyor will walk and make note of unique pollinator encounters- seeing the same Monarch twice, for example, counts as one, seeing two Monarchs counts as two. The marginal zone is traversed in 7.5 minutes, the central zone in 7.5 minutes. Total of 15 minutes. Notation is made of total number of unique pollinator encounters.

In addition to the first survey, a comparison with the baseline survey can be expressed as an index, so that, for example, if the marginal and central sampling zones demonstrated 17 unique pollinator encounters in the first year and this year there were 34, the index score This year/Baseline year would be 2.

Scoring: Field:

Year: (use 0 to designate a survey baseline before intervention, if there is no opportunity to survey before intervention, the first year of survey designated year 1, will be the baseline)

Season Early Middle Late

Date and Time:

Species Richness

Marginal zone:

Central zone:

Total: Index:

Flower Abundance

Marginal zone

Central zone

Total: Index:

Unique Pollinator Encounters

Marginal zone:

Central zone:

Total: Index:

Other parameters/ management practices:

End of season mowing

No more than 1/3 of site disturbed with mowing:

No pesticides:

No herbicides:

Shelter zones: bare ground, compost piles, undisturbed bunch grasses

Deep rooted forbs for carbon sequestration, storm water runoff

References: Hines and Hendrix, *Environmental Ecology,* 2005, Sheperd and Debinski, *Biological Conservation* 2005, *Rogers Tarpy Burrack,* PLOs ONe, 2015