The Declining Pollinator Population
in Western Pennsylvania

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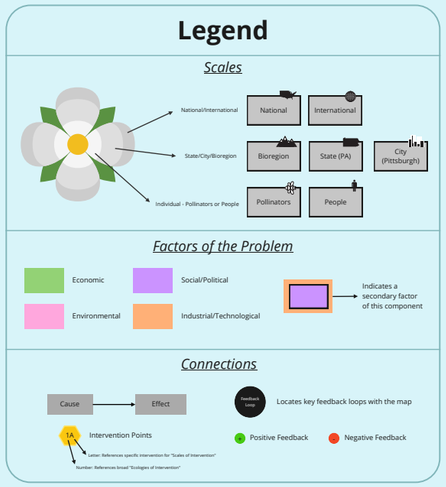
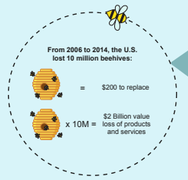
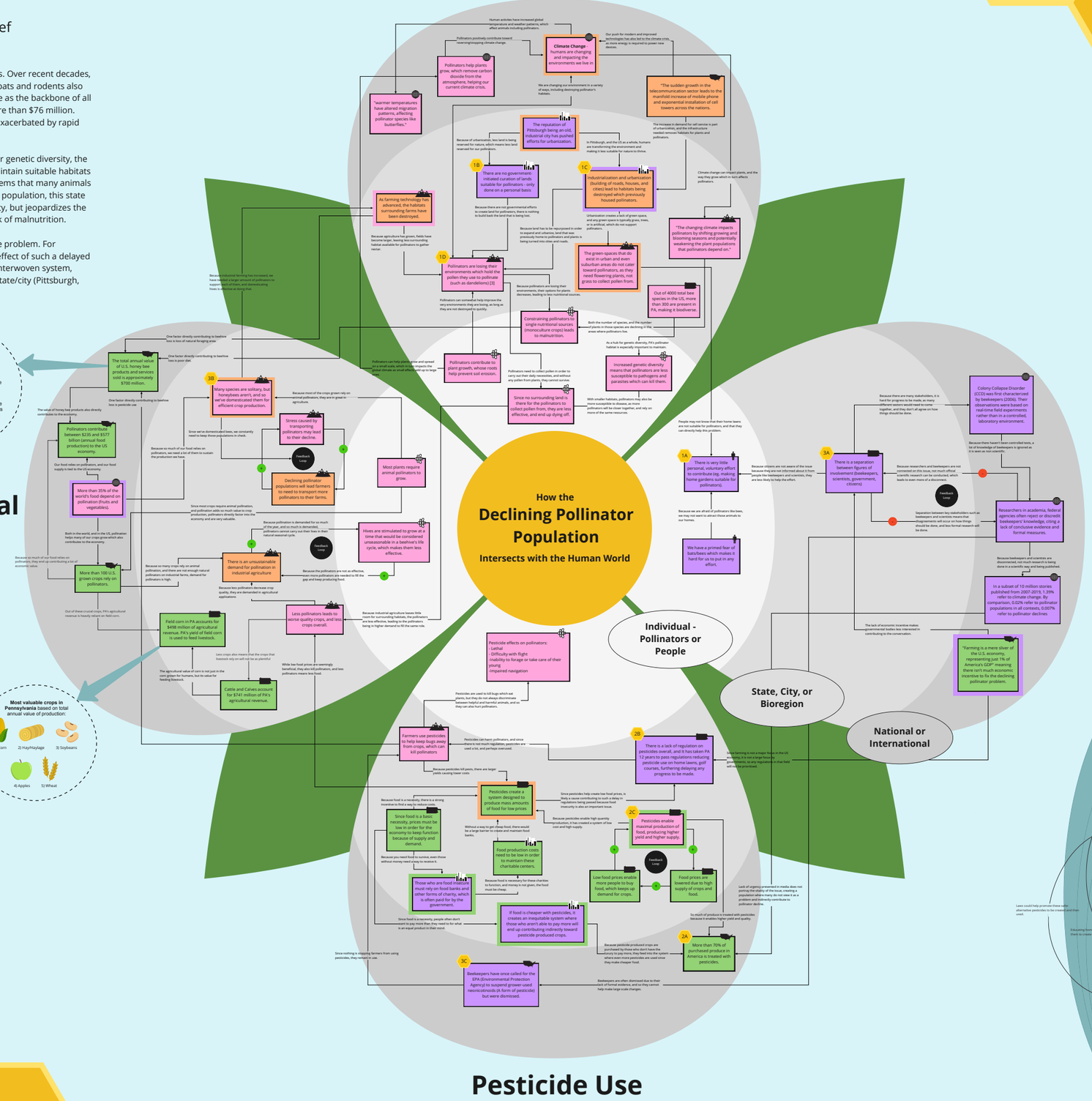
We have observed the pollinator population declining for much of recent history, contrary to its lack of public awareness. Over recent decades, Pennsylvania has observed a steep decline of pollinator colonies. While bees are the most important pollinators, birds, bats and rodents also make up this family. These certain species are not only central to almost all terrestrial ecosystems, but additionally serve as the backbone of all human-based food production. In Western Pennsylvania specifically, the value of the apiary industry is estimated at more than $76 million. One out of every three bites we eat is made possible by pollinators. However, the decline of their population has been exacerbated by rapid urbanization, pesticide use, a lack of awareness, and climate change.

Lines of impact are especially prominent in PA as it has a strong pollinator-dependent agricultural economy. As a hub for genetic diversity, the ecosystem of Pennsylvania further immunizes pollinators from parasites and pathogens, making it especially vital to maintain suitable habitats in this state. Pollinators don't only provide for our agricultural system, they are vital to creating and maintaining ecosystems that many animals rely on for food and shelter. In other words, their presence keeps the cycle of life turning. Without a sufficient pollinator population, this state (and the rest of the world) may experience a dramatic decrease in food supply. This not only endangers our food security, but jeopardizes the jobs of those in many connected sectors. For example, without pollinated field corn, herds of livestock are put at the risk of malnutrition.

It is important to acknowledge that contributing factors from various sectors overlap one another, further propelling the problem. For example, it has taken state lawmakers 12 years to pass regulations for reducing pesticide use on developed lands. The effect of such a delayed implementation is sure to produce devastating repercussions. All of these aspects come together to create a complex, interwoven system, prompting change. Our map explores these dimensions of change on various scales; national/international, bioregion/state/city (Pittsburgh, PA), and on the individual level (pollinators, and people).







Ecologies of Interventions

1) Creating Home Garden Pollinator Habitats

By educating the general public about the importance of pollinator habitats, and giving out kits for planting pollinator-attracting flowers on a city wide level. Through this, areas for pollinators to thrive can be created throughout our cities and neighborhoods.

Potential barriers include the resources to give out these kits, including costs, and the ability to gather the community. This could be done on a shorter time scale, and could possibly be a recurring annual event in a community.

2) Subsidizing and Purchasing Pesticide - Free Crops

States subsidizing crops produced with limited to no pesticides would create an incentive for farms to stop its use, and thus help pollinators. Such an incentive would lead to pesticide-free produce that is not as expensive as it may be today and encourage the individuals to purchase it.

Potential barriers include the government being resistive to providing this subsidy. This would also likely take place over a longer time scale, as existing economies can be resistant to change.

3) Promoting Research and Educating the Public

By increasing funding to scientists to research problems and potential solutions, not only could important findings arise, but this could help to connect various stakeholders. The government would fund it, the scientists would conduct research, and journalists would write about key findings to help spread awareness to the public.

Potential barriers include getting the government to fund such research, and getting journalists to write about this topic. This would likely take a long time, as research is an extensive process.

Stakeholders in Pittsburgh and Western PA

Policy Makers - *Pennsylvania Department of Agriculture*

Journalists - *Pittsburgh Post-Gazette*

Scientists - *Environmental Science Professor Matthew Opdyke, Ph.D*

Pollinators

Beekeepers - *Burgh Bees, Meadow Sweet Apiaries*

General Public - *The residents of Pittsburgh and Western PA*

Farmers - *Shiloh Farm, Grow Pittsburgh, Garfield Community Farm*

There are a variety of stakeholders on this issue, but all of them revolve around the pollinators themselves. Although the pollinators may not have any influence over this problem, they are the ones being directly harmed. The general public is also a key stakeholder, as without pollinators, we would not have enough food. Other stakeholders have more influence over the problem, such as beekeepers helping individual hives, scientists researching, farmers using pollinators on crops, journalists educating the public, and policy makers making laws.

Scales of Intervention