

## The collapse of insects - Data Story

### Introduction:

"The Collapse of Insects" is a compelling data story that explores the alarming **decline in insect populations** over recent years and the **devastating impact** this has on our ecosystem. **Authored by Julia Janicki, Gloria Dickie, Simon Scarr, and Jitesh Chowdhury**, this analysis sheds light on the critical role insects play in maintaining ecological balance.

The story is beautifully complemented by an **illustration from Catherine Tai**, adding visual depth to the narrative. The data for this analysis was **sourced** from reputable organizations, including the **International Union for Conservation of Nature**, the **Xerces Society**, and the **Animal Biodiversity database**, along with insights from *An Introduction to Higher-Level Classification and Taxonomic Richness*.

This piece serves as both a warning and a call to action, **emphasizing the urgent need for conservation** efforts to protect these vital species. The study combines detailed analysis with compelling visuals.

Although the specific **processing techniques and tools were not explicitly mentioned**, it is likely that commonly used tools for creating such illustrations include **Adobe Illustrator for vector graphics, React.js for interactive visual elements**, and various **Python libraries for data processing and visualization**. These tools enable the seamless integration of data-driven storytelling with engaging and informative visuals.

### Takeaways from the analysis:

#### Decline in Insect Population

1. Studies indicate a **9% decline in land-dwelling insect populations per decade**, highlighting a consistent and alarming trend.
2. Several species, including **bees, butterflies, beetles, and freshwater insects**, are now classified as threatened, posing a risk to biodiversity.
3. Over the last **150 years, an estimated 5% to 10% of all insect species have been lost**, signaling a significant reduction in global insect diversity.

#### Potential Causes

1. This article identifies multiple factors contributing to the decline of the insect population, including **habitat loss, industrial farming practices, climate change, pesticide use, and artificial light pollution**.

2. The **introduction of non-native plant species** disrupts local ecosystems, often outcompeting native plants, which in turn adversely affects insect populations dependent on them.

### Impact on the Ecosystem

1. **Insects play a vital role in pollination**, supporting over **75% of global crops**. Their decline leads to reduced agricultural yields, threatening food security.
2. **Disruptions in the food chain** caused by declining insect populations as the insects serve as a **primary food source** for numerous species have cascading effects on other species, **destabilizing entire ecosystems** and **accelerating biodiversity loss**.

This ongoing decline underscores the urgent need for conservation efforts and sustainable practices to protect insect populations and maintain ecological balance.

### Overall Strengths:

1. **Visually Appealing** – The story features **stunning illustrations** that effectively highlight the issue, making the content **both engaging and informative**. The visuals enhance understanding and draw attention to key insights.
2. **Real-Time Problem** – By focusing on an **urgent, real-world issue**, the story raises awareness about the ongoing decline of insect populations. Additionally, it **presents possible solutions**, encouraging action and further discussion.
3. **Interactive Visualizations** – The **dynamic visual elements**, particularly those illustrating insect population counts, keep readers engaged. These interactive components make complex data more digestible and immersive.
4. **Impactful Narrative** – The story skillfully weaves **relatable childhood memories** with scientific data, creating a personal connection for readers. Each claim is supported by **real-world examples and logical reasoning**, making the argument compelling.
5. **Well-Structured** – The information is **logically organized**, ensuring a smooth reading experience. The clear progression of ideas—from problem identification to potential solutions—makes it easy to follow and understand.

This combination of **strong visuals, data-driven storytelling, and an engaging structure** makes the data story both informative and impactful.

### Overall Weakness:

1. **Potential Bias** – The study primarily relies on **data from specific regions**, mainly Europe and North America. Drawing conclusions about a **global decline**

in insect populations based on this limited scope **may introduce bias** and may not accurately reflect worldwide trends.

2. **High variability** - The research highlights that while the insect population is declining, the **freshwater insect population** in Europe and North America are **increasing**. Thus suggesting that the **insect population is not uniformly declining** across all habitats.
3. **Challenges in Data Collection** - The study **covers only 1%** of the total insect species, leaving over a million species unaccounted for. The limitations in data gathering make the analysis incomplete and less conclusive.
4. **Limited Visualizations of Individual Species** – While the study provides detailed insights into the populations of various species, the **lack of visual** representations makes it **harder to grasp key information** at a glance, potentially causing important details to be overlooked when skimming the data story.

In conclusion, while the study provides evidence of declining insect populations in certain regions, its **analysis remains inconclusive** and **raises questions** about areas where insect populations are stable or recovering.

#### **Suggestions for improvement:**

1. The nested proportional **area chart** features **irregular shapes**, making **comparisons challenging**. It is difficult to determine whether the number of species relative to other vertebrates is greater, lesser, or the same. Using a **treemap** or a graph with uniform shapes would have **improved clarity and interpretation**.
2. A **multiple-line graph** depicting the **decline in insect populations** over the years, at least for the species mentioned in the data story, would have provided a **clearer visual representation** of the trend, making it easier to interpret than relying solely on textual descriptions.
3. The **visualization representing sub-groups** indicating whether species are threatened or extinct could have been more effective, as smaller sub-groups are **difficult to read**. Instead of displaying information for all species, **a ratio or a focused count of extinct and threatened species** could have been presented using a **stacked bar chart** or a similar alternative for better clarity.
