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## DAILY SCIENCE

# Is there an antidote to shifting baseline syndrome?

As species decline generation after generation, our idea of "normal" changes. But we can fight back against generational amnesia.

By **Cara Giaimo**

September 16, 2020

Imagine a world where **flocks of birds block out the sun, millions of bison** roam the Great Plains, and groupers **are the size of those who catch them**. For many contemporary people, such scenes seem impossible, as though they should be preceded by “once upon a time.” But they did happen, mere centuries or even decades ago. As generations of humans empty the world, their descendants are unable to see—and so find it hard to understand—how full it once was.

In 1995, fisheries scientist Daniel Pauly **used the term “shifting baseline syndrome”** to describe this phenomenon: each generation of fisheries scientists, he wrote, “accepts as a baseline the stock size and species composition that occurred at the beginning of their careers,” leading to “a gradual accommodation of the creeping disappearance” of species. Shifting baseline syndrome and its implications are now frequently invoked by people concerned about

**conservation, management, and environmental education.**

But although it's an intuitive concept, it's difficult to study. For a **recent paper in *People and Nature***, a group of researchers surveyed hundreds of UK residents about the populations of ten local bird species, and compared their knowledge with historic data. They also, for the first time, connected the survey-takers' knowledge of past and present bird abundance with their opinions about conserving those birds. **And while they found evidence that younger people are generally less adept at recognizing biological change than their elders are, they also found that knowledge of and personal experience with nature can help overcome that age gap.**

One reason it's hard to study shifting baseline syndrome is a lack of reliable data—you can't tell how knowledgeable people are about changing population levels if you don't know what those populations were and are. For this study, the researchers used combined data from two bird censuses that have been going on since 1966. They asked participants about their perceptions of the past and current populations of ten common and easily recognizable species, including the swallow, the house sparrow, and the common cuckoo. They had each person rank the birds they recognized by abundance, both at the time of the survey and when the participant was 18.

They found that, while all age groups surveyed had “similar perceptions of current ecological conditions,” their perceptions of past conditions varied. Older people were better at remembering

how abundant birds were when they were 18 than younger people could. “Even though older participants had a longer time over which to remember,” the authors write, “they recall past conditions that are more consistent with the biological dataset.”

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In other words, “the baseline against which participants perceive bird species abundance appears to be shifting with each successive generation.” The authors call this “generational amnesia.” (A few participants also showed “personal amnesia” — even though they had a good grasp on current relative population abundance, they didn’t remember any change at all from the past.)

The researchers also asked participants their opinions about how important it was to conserve the three most imperiled species in the dataset—the house sparrow, the common cuckoo, and the tree pipit. They found that for both the sparrow and the pipit, **older participants were more likely to have an accurate sense of how these species were declining**, and were more likely to support conservation action. This demonstrates “a negative impact of generational amnesia on conservation support for species in decline,” the authors write.

**It’s hard to say why younger people were worse at this task than older ones—perhaps the perspective that comes with years helps with such judgments.** It also shouldn’t be taken as evidence that younger people “don’t care” about saving species. Surveys show

**the opposite**, and young people are leading and carrying **major movements around climate change**, almost certainly the most important **conservation issue** of our time. But it's a reminder to look past our own experiences when trying to get a grasp on what has changed, and how quickly.

The study includes one particularly interesting and hopeful finding: Even more than age, the ability of participants to recognize particular bird species by sight was associated with how well they understood **population trends, information they reported getting from personal experience or from books**. This emphasizes the need for “**the promotion of intergenerational communication and knowledge-sharing**,” the authors write. Knowledge begets knowledge, and even if young people have never seen birds block out the sun—or just form **a good-sized cloud**—we can all hone our ability to imagine such a sight, and think of what it might take to get back there.

Source: Jones, Lizzie P. et. al. “**Investigating the implications of shifting baseline syndrome on conservation**.” *People and Nature*, 2020.

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