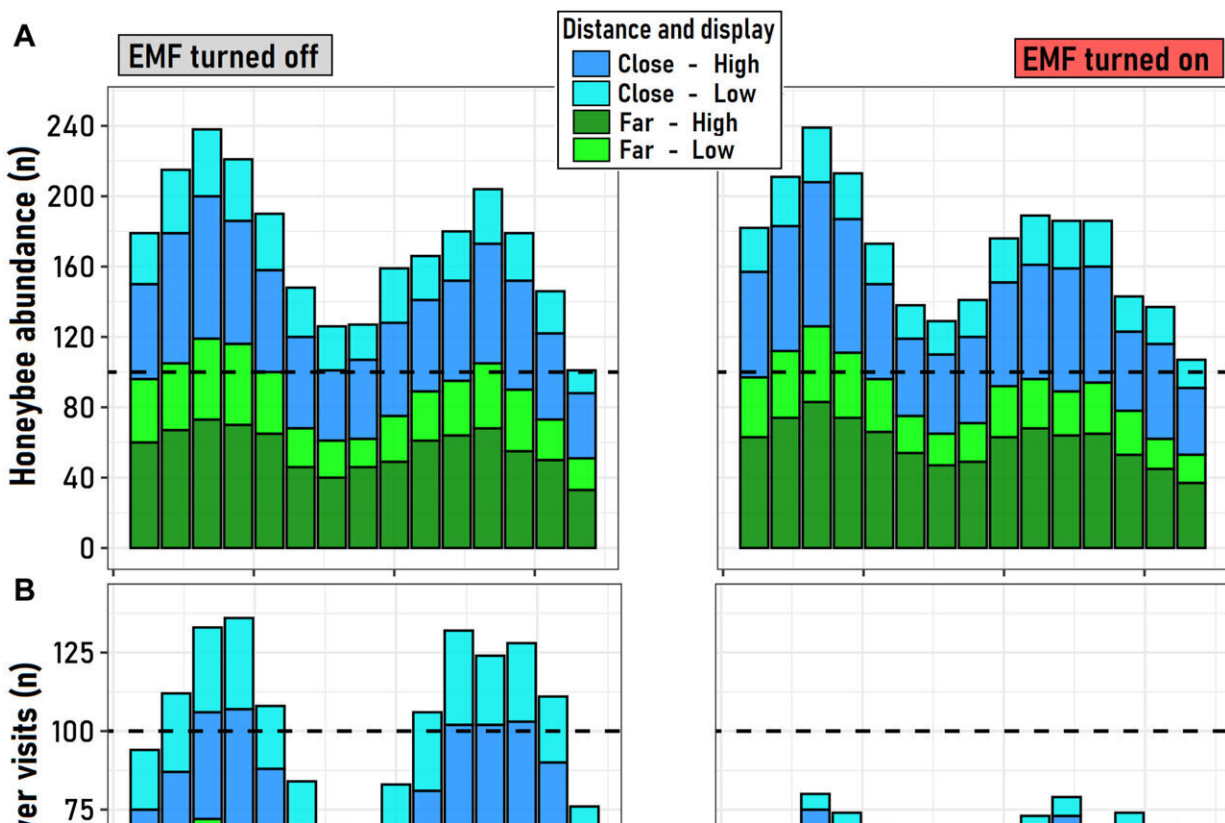


Evidence found of electromagnetic fields from electrical towers disrupting pollinating honeybees

May 15 2023, by Bob Yirka



Effects of EMF on pollination services and plant reproduction. Distribution of the abundance of *A. mellifera* individuals (A) and their flower visit count on California poppy patches during daytime (B) as a function of the patch floral display (low, yellow green/cyan; high, green/blue) and the distance (blue/cyan, close = 15 to 25 m; yellow green/green, far = 210 to 235 m) at which floral patches were from the electrical current transmitting towers. The bars represent

the summation of all observations recorded for three consecutive days at towers that were not transmitting any current (EMF turned off) and at towers that did (EMF turned on; see Materials and Methods for details). The dashed line at 100 counts is for reference at the bottom (C), the seed production of *E. californica* individuals with different type of pollination (natural or assisted) among the four experimental plant groups (colors) under active transmission lines (EMF-on). Points represent patch values at a given hour in (A) and (B) (3-day summation) and individual values at (C); boxes and bars behind the points at (C) correspond to the group interquartile distribution (5, 25, 50, 75, and 90 intervals). Letters above each group represent the results of the marginal mean paired comparison performed on the data. Similar letters indicate nonsignificant differences ($P > 0.05$) between groups. Credit: *Science Advances* (2023). DOI: 10.1126/sciadv.adh1455

A multi-institutional team of biologists and ecologists from Chile and Argentina has found evidence suggesting that electromagnetic fields emanating from electrical towers disrupt pollinating honeybees. The research is published in the journal *Science Advances*.

Prior research has suggested that [electromagnetic radiation](#) emitted from power lines may interfere with plants and animals in the vicinity—though some have suggested that the [unique habitat of the treeless regions](#) where power lines pass through forests may confer some natural benefit.

In this new effort, the research team focused specifically on the impact of electromagnetic [radiation](#) emitted from electrical towers on honeybees—they chose [honeybees](#) because prior research has shown they navigate using natural electromagnetic fields. And they chose to use electrical towers rather than power lines themselves because they had access to similar towers without [power lines](#), allowing for comparison purposes.

The researchers first counted the number of poppies flowering around active towers and towers that were inactive—they found there were far fewer flowering around the active towers. The researchers also measured the electromagnetic fields around multiple towers to discover how strong they were at various distances.

They then collected several honeybee specimens flying at different distances from a [tower](#) and measured the levels of a protein called HsP70 in their bodies—this protein has been shown to be related to stress in the bees. As expected, they found higher levels in the bees working closest to the electrical towers.

The research team then collected more honeybee specimens at a distance from any towers or lines and brought them back to their lab for study. They exposed them to different amounts of electromagnetic radiation and then measured expressions related to 14 genes known to be associated with navigation, stress and the [immune system](#). They found differences in 12 of those exposed to electromagnetic radiation.

The team finished their study by once more venturing into the field to study the bees working closely to electrical towers—they found that the frequency of visits to a nearest flower that were closest to a tower were approximately 308% lower than in areas where there were no towers.

The group concludes that [electromagnetic fields](#) around electrical towers have a detrimental impact on honeybee pollination, and by extension, the surrounding plant community.

More information: Marco A. Molina-Montenegro et al, Electromagnetic fields disrupt the pollination service by honeybees, *Science Advances* (2023). [DOI: 10.1126/sciadv.adh1455](https://doi.org/10.1126/sciadv.adh1455)

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