Debating pros and cons of gene drives to control disease-carrying insects and other pests

British biotech company Oxitec plans to kick off a months-long experiment in which it will release billions of Aedes aegypti mosquitoes in California and Florida. But these aren't just any mosquitoes — they're genetically engineered so that they don't bite, and will, if all goes according to plan, eventually reduce the population of mosquitoes in these areas.

Proponents say, at scale, such a program would result in:

- Less mosquito-borne illness
- Little ecological impact since mosquitoes are not a keystone species
- Less pesticide use, currently used against mosquitoes, which means better protection of local plants and animals
- Little or no negative impact on humans as the mosquitoes are safe, quick, and effective

Opponents say:

- Mosquitoes may not be a keystone species, but other animals do eat them and so eliminating the insects may in fact have an ecological impact
- There could be unintended consequences, such as a hybrid species or the creation of a new ecological niche that other animals, which carry potentially even more lethal diseases, could move into
- It takes expensive, large-scale trials to have certainty about safety and efficacy

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Others envision even more far-reaching applications, such as species conservation (by helping native species become immune to disease or even to the harsher conditions of climate change).

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