

REPLACEMENT FOR DISEASED OR THREATENED SPECIES?

- Synthetic biology may potentially be used to help save plants struggling from disease outbreaks or are under attack from invasive species. The loss of ash trees from emerald ash borers in urban areas has been linked to increased rates of cardiovascular and respiratory diseases (Donovan *et al.* 2013).
- Work is also currently underway to genetically engineer American chestnut trees to be resistant to chestnut blight, a fungal disease that has drastically reduced the populations of native chestnut trees. Reintroduction of these trees will likely impact other tree and plant species that replaced chestnut-dominated areas.

REFERENCES AND ADDITIONAL RESOURCES:

- Donovan, G. H., Butry, D. T., Michael, Y. L., Prestemon, J. P., Liebhold, A. M., Gatzliolis, D., & Mao, M. Y. (2013). The relationship between trees and human health: Evidence from the spread of the emerald ash borer. *American journal of preventive medicine*, 44(2), 139-145.
- Nowak, D. J., & Crane, D. E. (2002). Carbon storage and sequestration by urban trees in the USA. *Environmental pollution*, 116(3), 381-389.
- Chestnut blight research: William Powell, SUNY-ESF (<http://www.esf.edu/chestnut/#.VDmHxsYnWf0>),
- The American Chestnut Foundation (<http://www.acf.org/index.php>)
- A transgenic approach to combat Huanglongbing: <https://pag.confex.com/pag/xxii/webprogram/Paper9850.html>