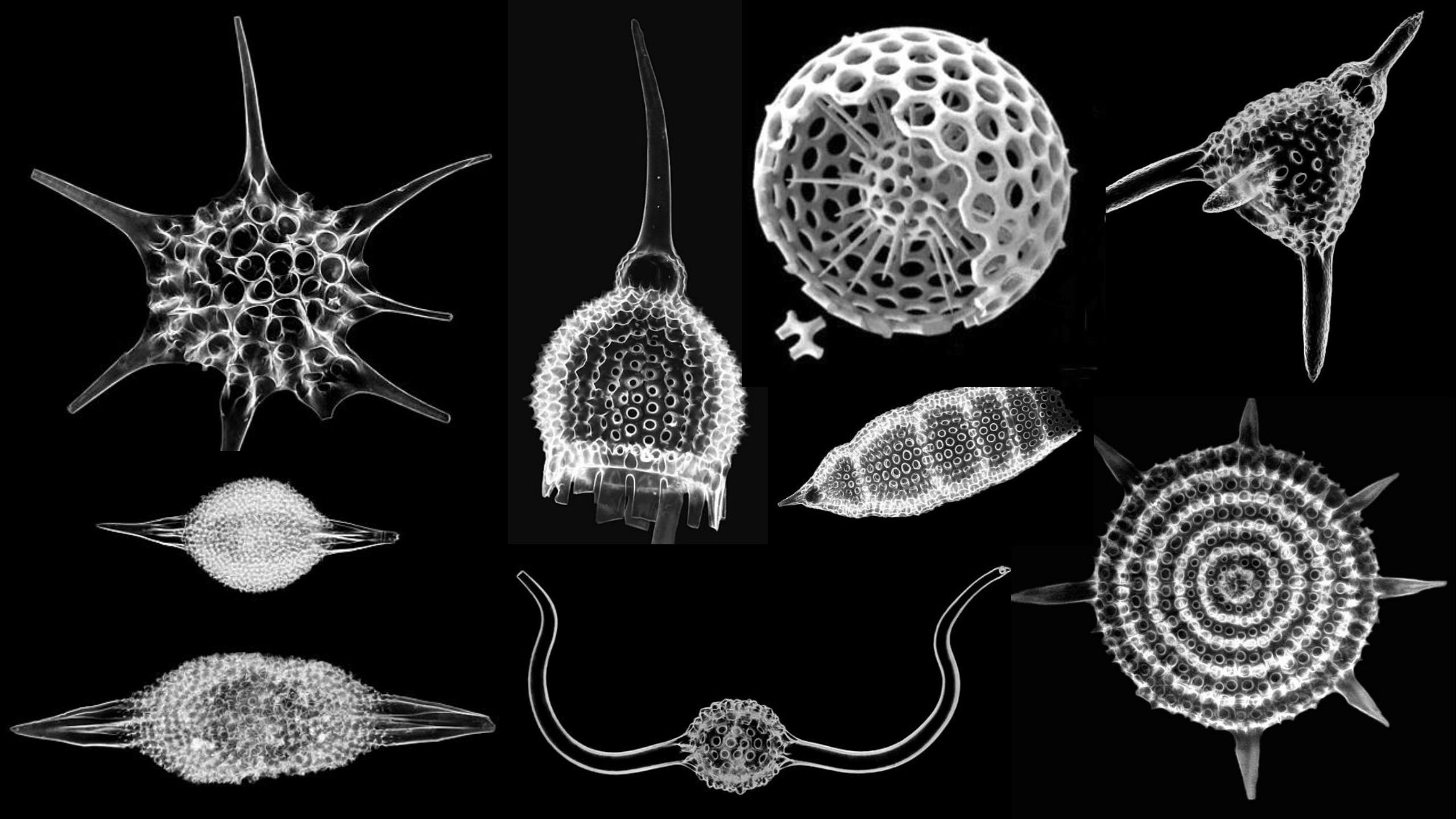
Andy Newhouse

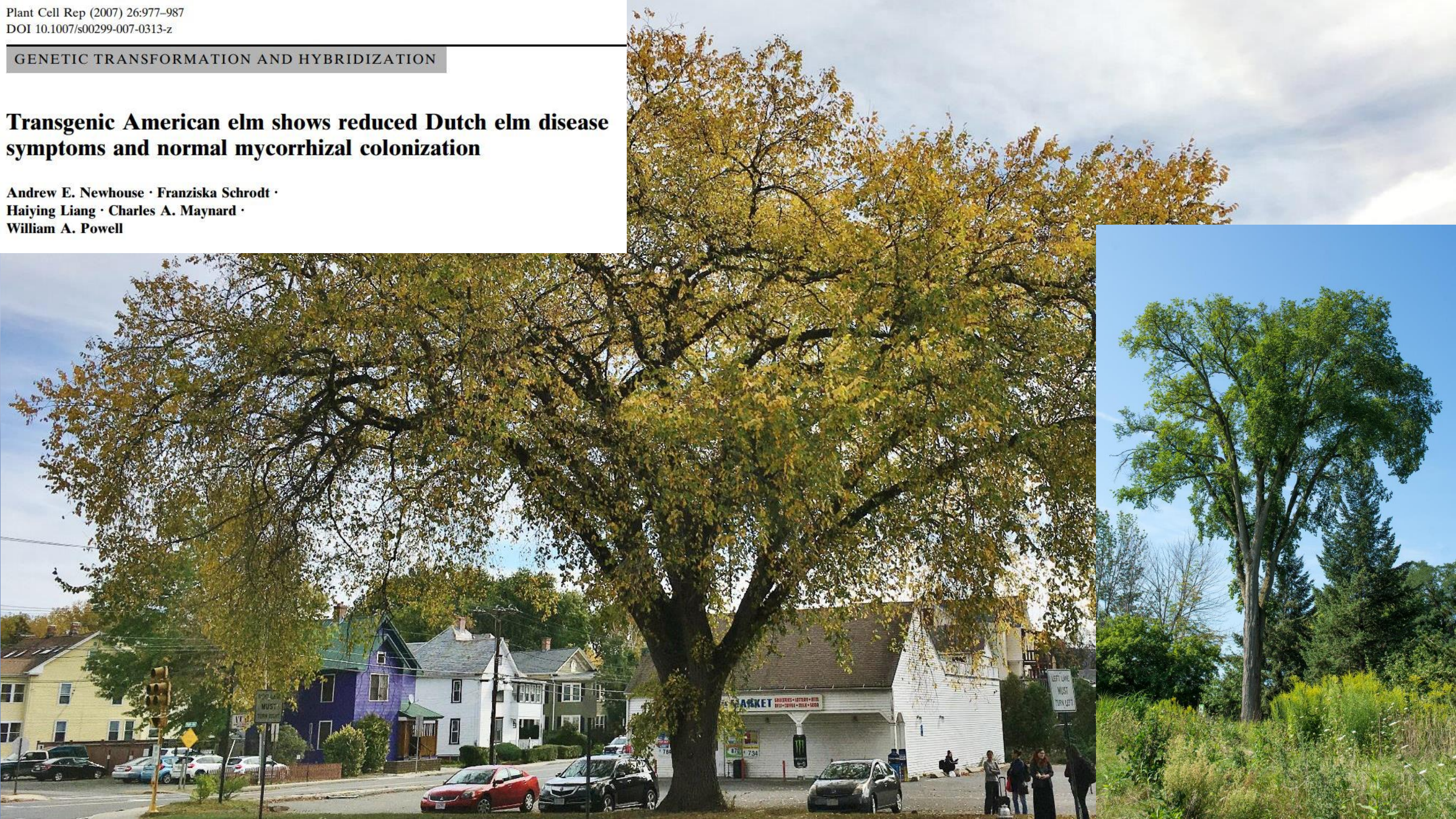


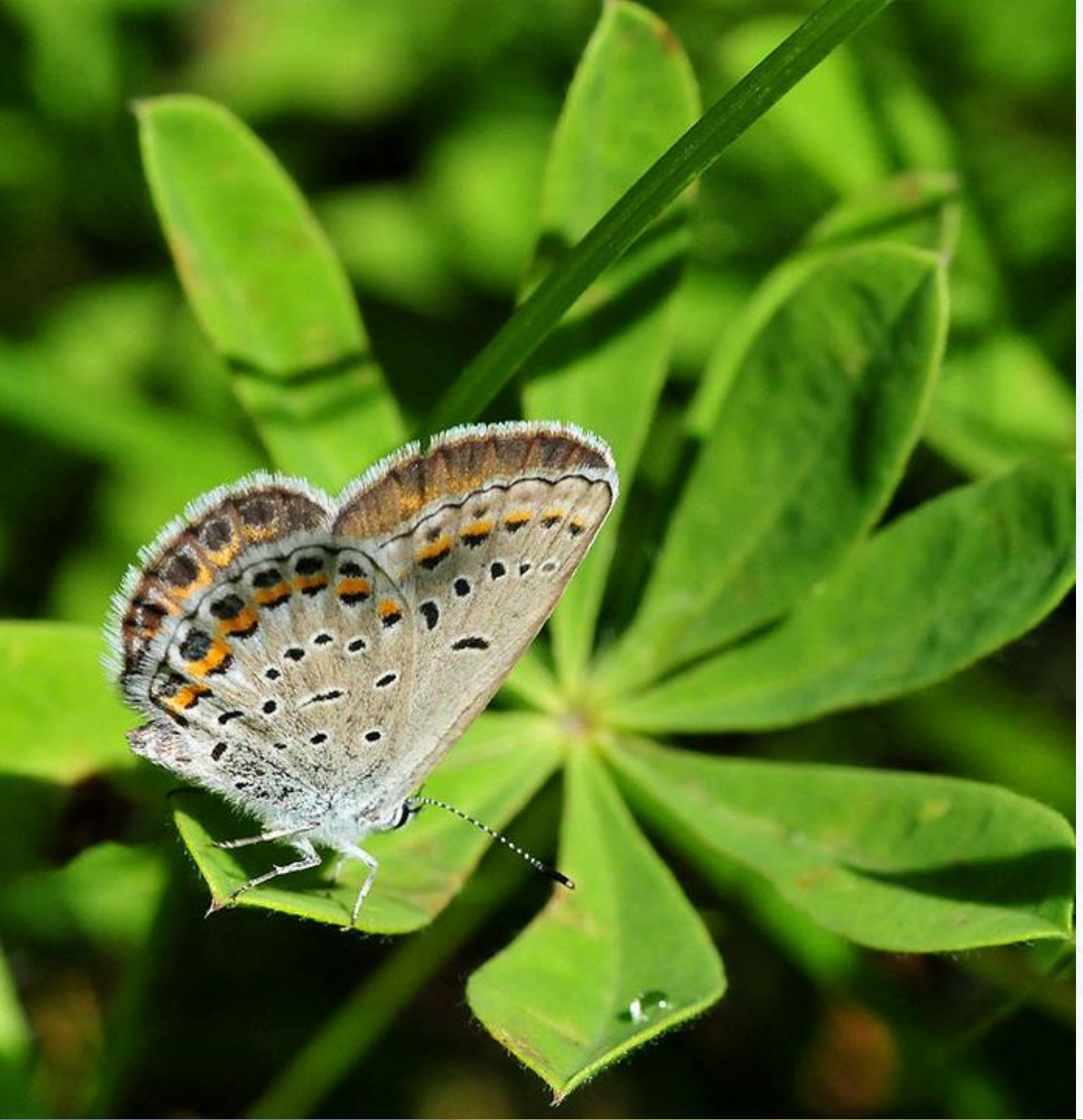
Plant Cell Rep (2007) 26:977–987
DOI 10.1007/s00299-007-0313-z

GENETIC TRANSFORMATION AND HYBRIDIZATION

Transgenic American elm shows reduced Dutch elm disease symptoms and normal mycorrhizal colonization

Andrew E. Newhouse · Franziska Schrodt · Haiying Liang · Charles A. Maynard · William A. Powell





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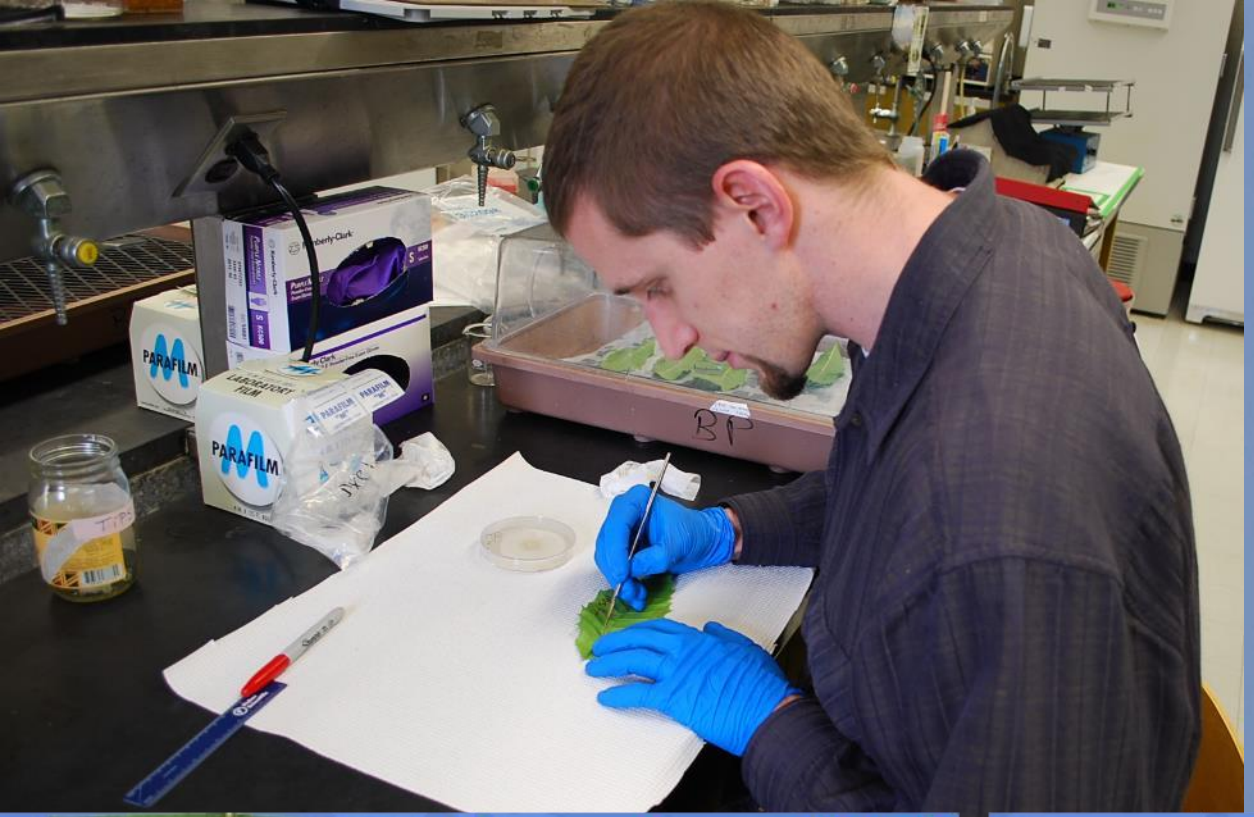
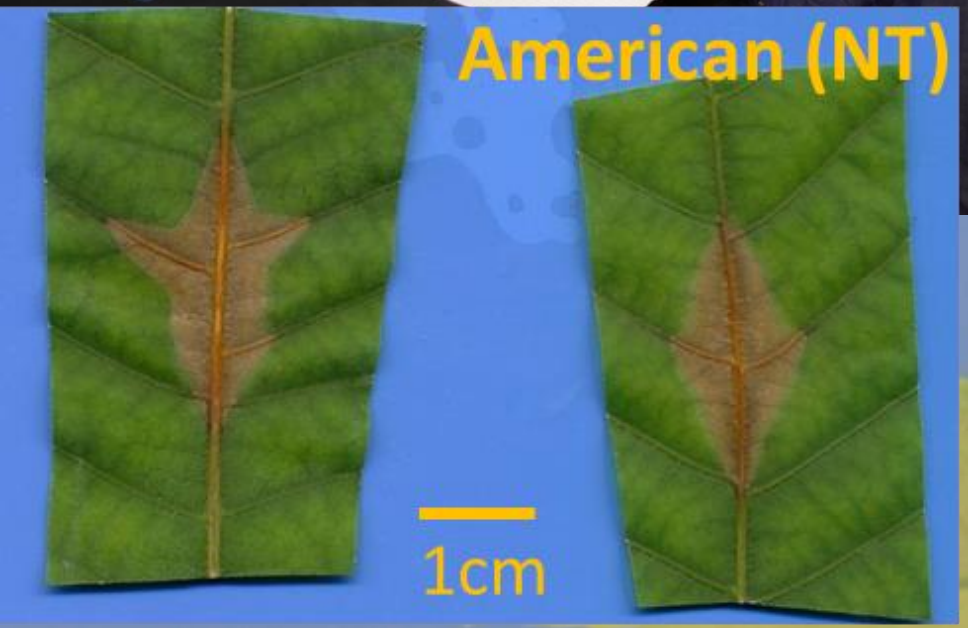


ESF

See: https://doi.org/10.1094/PDIS-01-13-0047-RE



Darling 58 T1 Full Sibling Stem Inoculations 2018

5mm wound

Canker

Canker

Rep 1

Rep 2

- *Tolerance*

- Selection pressure

No enhanced risks to humans or the environment

(traditional breeding for comparison)

- Nutrition & safety of transgenic nuts
- Mycorrhizal colonization with roots
- Leaf decomposition rates
- Tadpole growth & development with transgenic leaves
- Bee feeding/use of pollen
- Many more…

More info: https://www.esf.edu/chestnut/poster.htm , Current and future issues of TACF's *Chestnut* journal, including: www.acf.org/wp-content/uploads/2020/02/Safety-Tests-on-GE-American-Chestnut_part-1_2020-Winter-Chestnut.pdf

Long-term Ecological Research: BRAG

- Starting at three sites, 2019
- Several chestnut types / restoration methods
- Environmental interactions
- Photosynthesis & metabolism
- Effective pollination distance
- Natural dispersal

Regulatory Overview

Currently: permitted plantings only

- 3 US federal agencies
  - EPA (Safety of pesticides)
  - FDA (Safety of human food & animal feed)
  - USDA-APHIS (Safety to plants and environment)
- Canada — Canadian Food Inspection Agency
- Estimated 2-5 years to distribute?

Open Comment Period should start soon!

Other Considerations

- Paradigm shift for regulators, growers, enthusiasts, public
- Community involvement and support is key
- Balance: Transparency, privacy, security
- Patience!

Beyond American Chestnut


ESF
Thank you!
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