Slow-growth Forests

Climate change may stunt rather than spur tree growth

Not all forests are responding to climate change in the same way. In the Amazon, trees are growing faster. But new research shows that trees in Panama and Malaysia are actually growing more slowly. So if we were pinning our hopes on tropical forests working overtime to absorb excess CO₂, we may need to think again.

Moreover, the news isn’t good for the many animals that depend on tropical forests or for the forests themselves. “Decreased growth will almost certainly slow the rate of forest recovery following logging,” says Kenneth Feeley of Harvard University, who with four coauthors reports this work in Ecology Letters.

The researchers determined growth rates of hundreds of tree species over the past 20 years at sites on Panama’s Barro Colorado Island and in Pasoh, Malaysia. To their surprise, most trees at these sites are growing more slowly than they used to. For saplings, more than two-thirds of species censused in Panama and nearly all of those in Malaysia are growing more slowly. For the largest trees, one quarter of species censused in Panama and more than half of those in Malaysia are growing more slowly. Overall, forest growth rates have dropped about one percent and about six percent per year, respectively, at the two sites.

Slower growth in these forests is associated with higher temperatures, lower rainfall, and more cloudy days. This finding, coupled with the faster growth in Amazonian forests, suggests that climate change may affect tropical forests regionally rather than globally. “These patterns strongly contradict the hypothesized pantropical increase in tree growth rates caused by carbon fertilization,” says Feeley.

For summaries of groundbreaking research hot off the press, go to journalwatch.conservationmagazine.org.