As the sport of tree climbing grows, ecologists and climbers grapple with the implications

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Some sport climbers have embraced the challenge and majesty of big trees. But it's a careful balance between cherishing nature, inspiring conservation, and minimizing ecological damage. Image credit: Noah Kane (photographer).

Back in 2015, professional rock climber Chris Sharma scaled the trunk of a 250-foot-tall California redwood. He free climbed the tree methodically, gripping the deep vertical furrows in the bark like holds in a delicate rock face. “Growing up in Santa Cruz, even before I started rock climbing, I always played on trees,” Sharma says in a YouTube video of the ascent made by then-sponsor Red Bull. Although climbing has taken Sharma up some of the most difficult routes in the world, including Spain’s La Dura Dura (which means “the Hard, Hard”), he always returns to the redwood forest. “I started looking up and seeing more than just trees,” he says in the video, which has been viewed more than 1.3 million times, “but actually seeing lines that would be amazing to climb on.”

Every so often a big tree climb like this surfaces on TV or the Internet. Rock climbers take notice, and the tiny sport of tree climbing grows. But climbing trees can also damage them. Canopy ecologists have debated the merits and costs of recreational tree climbing for the better part of 50 years.

On the one hand, enthusiasts rushing to climb old growth could damage habitat, and sport tree climbing is illegal in many state and national parks. But on the other, climbing into trees recreationally is already bringing awareness to forest conservation. And climbing techniques have matured from highly destructive practices, such as hammering permanent hardware into trees, to ascending via a dangling rope, and hardly touching the tree at all.

While tree climbing remains a niche sport, there are signs that it may be growing. In 2021, a small group in Monteverde, Costa Rica, released the documentary Climbing Giants, about scaling strangler fig trees that can reach 150 feet tall. The protagonists have a similar style to Sharma’s, their hands and feet wedged
against the bark. A deep reverence for the forest inspired the climbers, according to the film, which is now an official selection for several festivals. “It’s about connecting with nature in this awesome, intimate way,” says co-director Noah Kane, who grew up in the woods of Monteverde. For researchers, this kind of climbing inspires a “battle,” especially in sensitive habitats, says canopy ecologist Wendy Baxter, “between wanting to have people cherish nature, and get to that place by spending time there,” while wanting “to have as little impact as possible.”

These sorts of debates aren’t unique to tree climbing. Other sporting communities, from rock climbers to SCUBA divers, have grappled with their ecological impacts as hobbyists flocked in. Research on those sports’ impacts could help inform a happy medium between recreation and conservation.

**Seeing the Forest for the Trees**

In 2015, Red Bull approached Baxter and her colleague and now-husband Anthony Ambrose, who are co-founders of The Marmot Society in South Lake Tahoe, CA, asking them to rig the ropes that would protect Sharma during his redwood ascent. Initially, Baxter and Ambrose hesitated. But Red Bull already had permission to climb on private land. The project would proceed with or without the researchers’ input. And the land around the tree happened to be heavily developed already. Importantly, according to Baxter, Red Bull agreed to include educational messaging; the YouTube video explicitly discourages copycat climbing, and it includes footage of Sharma with Ambrose measuring the redwood’s height at the crown and taking foliage samples to assess drought stress. “It was great to come out here with Anthony and Wendy,” Sharma says in the video, “these tree biologists that helped us do everything in the most careful way.”

Ambrose and Baxter stand by their decision to help with the filming today. “We don’t want people to see the media we’re part of... and say ‘oh I want to do that for fun,’ in national parks where it’s not allowed,” Baxter says. “But I certainly understand and support it in places where it is allowed, because recreational tree climbing is a way for people to connect with nature.”

The discussion over who should have access to the canopy, and under what circumstances, has been brewing for decades, says pioneering canopy ecologist Nalini Nadkarni at the University of Utah in Salt Lake City—ever since the first ecologists used rock climbing gear to hoist themselves into the treetops. “We didn’t know if we should try to tout the beauties and wonders of the canopy, or just sort of shut up about it and not encourage people,” she says.

Standing on the forest floor at her field sites in Costa Rica, where she studies epiphyte diversity, Nadkarni looks up into the canopy, scanning for a set of high, thick branches. She climbs using machinery to ascend a dangling rope. First, Nadkarni pulls out a homemade invention, which she calls a “Master Caster,” rigged together from a slingshot and fishing reel, mounted on a short aluminum pole, and shoots the fishing line 100 feet up over her chosen boughs. The line’s weighted end dangles over the branches and down to the ground. So begins a process of tying heavier cords to the fishing line and reeling them in, until finally a thick rope dangles over either side of the chosen branches. Then Nadkarni ties one end of her rope to the tree trunk and steps up to the other end wearing a rock climbing harness.

On a Zoom call from Utah, Nadkarni demonstrates how she climbs in the forest, by ascending a rope dangling from the ceiling of her lab. Nadkarni steps up to the green-and-white striped climbing rope and inches up using two large yellow clamps called ascenders, attached to her harness by a carabiner and length of webbing. Nadkarni slides each ascender in tandem—one for her upper body and one with toe stirrups for her feet—upward along the rope in a series of sitting and standing movements as she climbs. The ascenders won’t accidentally backslide, so each one acts as a brake, holding up to 2,000 pounds when the climber lets go of the rope.

Ecologists have been accessing the canopy using a variety of methods involving ropes and pulleys for about fifty years. The first techniques “we borrowed directly from sports climbers,” Nadkarni says. “We didn’t invent harnesses, we got them from folks already climbing rocks and mountains.” The pioneers of canopy research climbed large trees in much the same way mountaineers did, anchoring their ropes with metal spikes, called petons, which they hammered into cracks and grooves in the bark.

The earliest old growth ascents were for “exploration of flora and fauna,” says pioneering canopy mycologist George Carroll, an emeritus professor at the University of Oregon in Eugene. Some of that work, around the mid-1970s, involved collecting lichens on six Douglas firs in the Oregon Cascades (1). Researchers hammered short rope ladders up the trunks, using large fasteners and bolts to secure their hardware. Then they installed pulleys in the tree crowns, rigged with heavy-duty nylon climbing ropes, so that a two-person team, one on delay and one climbing, “could revisit the same tree again and again with comparative ease,” Carroll explains.

Even in those early days, it was clear that such destructive methods weren’t sustainable. The then-tiny canopy research community worried that the techniques they’d borrowed from mountaineering would attract competitive sport climbers who weren’t sensitive to the ecology. In the intervening years, researchers found less damaging ways to climb, most commonly by using ascenders to move along the rope as Nadkarni does, while hardly touching the tree on the way up or down. Other methods include using construction cranes in accessible areas or, occasionally, using hot air balloons to drift over the treetops (2).

While access methods have evolved, any form of climbing can potentially cause damage in three ways, says Ambrose. First, there are impacts to the tree itself, for instance if a climber snags a branch, or if friction from their rope cuts into the bark. Second, there’s disturbing the tree’s wildlife, ranging from nesting birds to bats to epiphytic orchids to mosses. Third, there could be impacts to the broader forest, whether trampling understory ferns or wounding tree roots by compacting the soil. “Whether for scientific purposes or recreation, it doesn’t matter, if you’re going up into the canopy,” Ambrose says, “these are the impacts you’re trying to minimize.”
Standing at the crown of an old growth tree can inspire research and inform measures to stop logging. But researchers and recreationalists are seeking to strike a sustainable balance between science and sport. Image credit: Wendy Baxter (The Marmot Society, South Lake Tahoe, CA).

**Careful Ascent**

Connecting with nature while minimizing impacts is the goal for arborist Damien Carré, the owner of Expedition Old Growth in Portland, OR. He’s been taking scientists and the general public into the canopy since about 2010, in part because a handful of lichenologists and ornithologists approached him for help accessing study sites in trees. Carré’s services spread by word of mouth, and he now estimates he’s helped some 2,500 to 3,500 people get into the trees, using harnesses and ascenders, mostly in city parks, on private property, and in a handful of national forests.

Although Carré prides himself on using the least-invasive climbing techniques, he shares some of ecologists’ concerns about the risks of sport. He knows that at least one competitor company uses rock climbing gear on trunks. Carré describes many of his non-scientist clients as adventurers who find unexpected education about, for example, the impacts of deforestation. “If we can connect more people to the forest, they won’t be so compelled to let it be cut down,” Carré says. “It’s what John Muir said: ‘If you want to experience nature, it’s got to be used, but in an ethical way.’”

“We actively discourage people from climbing old growth trees, and when we hear someone has discovered a superlative tree somewhere, we encourage that person and others not to publish the location of that tree,” notes Patty Jenkins, the executive director of Atlanta, GA-based Tree Climbers International, or TCI, which bills itself as the “world’s first school for recreational tree climbers.” Since 1983, TCI has offered classes teaching recreationalists and, since 2008, entry-level tree workers how to climb. Jenkins says the organization encourages tree climbing as a sport in city parks, state parks, national forests, and on private property where it’s legal. TCI urges climbers to use cambium savers, sleeves of leather or plastic that sheathe a climber’s rope to minimize friction.

In some places, such as national parks meant to be preserved in perpetuity, tree climbing is not only forbidden but fraught. One Northern California canopy ecologist declined to comment for this story, citing concerns that a growing number of sport climbers, their support teams, and the journalists that follow would inevitably damage giant trees and the surrounding forest. Other sources echoed these concerns.

But in other parts of the world, such as the Australian island of Tasmania, the ecological benefits of tree climbing may outweigh its risks. Tasmania is home to the Australian mountain ash (Eucalyptus regnans), which can reach 300 feet tall. Unlike California’s protected giant sequoias and redwoods in parks, Tasmania’s giant mountain ash trees are logged.

What’s happening there is not unlike West Coast redwood logging two generations ago, says Tasmanian giant tree advocate Steven Pearce. “In Tasmania, we’re just later in that process,” he says. Pearce and ecologist Jennifer Sanger are a husband–wife team hoping to spare Tasmania’s old growth mountain ash by jumpstarting big tree tourism. They co-founded a nonprofit called the Tree Projects, which leads free recreational expeditions to ascend the giants. Over the last two years, Pearce and Sanger estimate they’ve taken 200 climbers up the same four trees, which limits trampling of the broader forest understory, likely climbing’s biggest ecological impact in Tasmania, Sanger says. Eucalyptus shed their bark every year, so they don’t have the diversity of mosses and lichens that could be knocked off a redwood, she says. While climbing inevitably causes some damage, for instance kicking the thin bark, that’s a small price to pay, Pearce says, if recreation could save the tree from logging.

Although climbers and ecologists might sometimes seem at odds, “underneath it, there isn’t a debate; we all care about trees,” says Nadkarni, noting the search for common ground, or as she puts it, “common canopy.” It’s a quest that resurfaces with each generation of new climbers, says arborist Kevin Hillery, a pioneer of wilderness tree climbing for research in the ’80s and now based in Portland, OR. In 1994, Hillery wrote one of the first calls for ethical standards for tree climbers to reduce their impacts (3). He noted the environmental impacts of early rock climbing, including litter and damage to delicate geologic formations. The result: increasing restrictions on outdoor access for the sport. To avoid similar outcomes for tree climbing, Hillery suggested that both recreationalists and scientists think ahead about the damage their activities might cause, continuously evaluate the risks throughout every climb, and if in doubt, favor the good of the tree over the rewards of one ascent.
Such suggestions echo approaches to SCUBA diving, whose impacts—for example, accidentally kicking delicate reef-building corals and sponges—have long been the subject of scrutiny. A 2020 review article on SCUBA impacts analyzed 67 articles and found 15 different kinds of interventions recommended across the literature (4). These range from requiring continuous training for guides to minimize diver impacts to requiring a pre-dive briefing by tour operators, to government regulations and monitoring, aiming to limit diving-related environmental damage.

Often, organizations that represent rock climbers or SCUBA divers have “come to the table with public lands and water managers” to identify environmental issues and address them, says nature tourism and recreation researcher Kelly Bricker, at Arizona State University in Phoenix. For instance, last year, Joshua Tree National Park held a public meeting inviting climbers and the public to offer feedback about the park’s development of a new rock climbing management plan. The park estimates that the number of rock climbing routes with bolts drilled into wilderness areas has doubled since 2000; it recently sought comments from the public to inform any forthcoming climbing-related management changes.

These other sports may offer important lessons. “There must be some kind of balance,” Nadkarni says, “between locking up trees only for researchers and opening it up to any yahoo.”

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