

Light 'em up now for better garden results

By Melinda Myers

It's time to break out the seeds and potting mix to start your garden plants indoors. It's a great way to keep your green thumb in shape over winter. Plus, you'll save money, increase your variety of plants and jump start the growing season when you start seeds under LED grow lights.

Indoor growing conditions often offer limited light and that can mean tall leggy transplants with weak stems. You can greatly increase your success by investing in quality grow lights. Adding artificial light to your seed starting regime results in stout transplants with strong stems and deep green leaves.



LED grow lights provide greater light intensity, making it easier to grow strong transplants for gardens and containers.

Photo/Gardener's Supply Company

Invest wisely when shopping for indoor plant lights. Fluorescent tubes used to be the standard because they provided a wide spectrum of light needed for plant growth and flowering, were relatively inexpensive and readily available. Unfortunately, they used significant amounts of electricity and needed to be replaced every few years. Then many gardeners shifted to full spectrum fluorescent grow lights. Many last longer than the older and larger fluorescent tubes, but new LED grow lights provide even better light intensity with much less energy.

If you've looked at LED lights in the past, you may have suffered sticker shock. Fortunately, the prices have dropped. And if you consider LED plant lights typically use half the energy of fluorescent tubes, provide consistent light quality and last up to five times longer, the long-term savings outweighs the initial investment. Plus, they're mercury-free and won't add contaminants to landfills.

When replacing fluorescent tubes with LED grow lights, look for compatibility. Some of the newer LED grow lights are compatible with existing T-5 light setups. You just replace the bulb, not your whole lighting system.

You will get the most out of your investment and grow better transplants with proper use. Move seedlings under lights as soon as they start breaking through the soil surface. Keep the lights about six inches above the top of seedlings. This means you'll need to raise the lights or lower the plants as the seedlings grow. Make your own light stand using adjustable supports to raise and lower lights as needed. Use a reflector above grow light tubes to direct the light downward toward the plants. Bounce light back onto seedlings by using reflective surfaces under and around the plants. Even easier, invest in a quality grow light stand.

Set the lights on a timer. Seedlings need about 14 to 16 hours of light. Plants do need a dark period, so running the lights longer wastes electricity and is not good for the plants. If you are using grow lights to supplement natural daylight, you may only need to run the lights a few hours a day. Monitor plant growth and increase the duration if plants appear leggy or pale.

Increased light along with proper watering, fertilizer and growing temperatures will ensure you have a bumper crop of transplants for your gardens and containers.

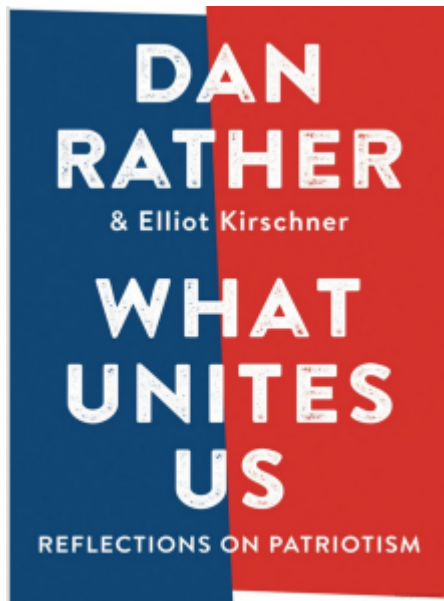
Melinda Myers has written more than 20 gardening books, including "Small Space Gardening." She hosts the Great Courses "How to Grow Anything: Food Gardening For Everyone" DVD set and the nationally syndicated "Melinda's Garden Moment" TV and radio segments.

LTN Book Club: 'Steady' words by Dan Rather

By Susan Wood

"The arc of the moral universe is long, but it bends toward justice."

Martin Luther King Jr. made the powerful statement with such poise about a time of social movement, I wished I had written it. It resonates with me to this day.



Venerable journalist Dan Rather used it near the end of his new book “What Unites Us” (Algonquin Books of Chapel Hill, 2017) to describe a society full of strife needing “Courage” (the name of the chapter) to overcome the chaos of injustice. He wrote it with Elliot Kirschner.

This work of nonfiction is one to learn from. For the battle for truth and justice is not clean and simple. Take Jackie Robinson, Eleanor Roosevelt or countless others who committed their lives to the quest for distinguishing right from wrong.

“What Unites Us” is an easy read and hard to put down.

Maybe it’s me, but I can’t help but think others would be as interested as I was.

I needed this book at this particular point in time. When truth, decency, democracy and the free press is under attack, I turned to someone I trust to be a patriot.

Rather has practically seen and experienced it all. With a career spanning six decades, he’s covered every president since Dwight Eisenhower. He’s been on the scene for about every important dateline around the globe. He joined CBS News in 1962, launching a decorated career as anchor, managing editor and major contributor to “60 Minutes.” He was forced out when a bad source took him down the wrong path.

Still, his wisdom and steady hand provided the news for millions of television viewers – a few stories hard to stomach because of their sheer impact on our lives and their senseless nature.

He even incorporates a personal flair, as when he recounted a chat with his wife as he struggled to cover the assassination of President John F. Kennedy. Rather was especially moved.

After all, this was a leader who came to Rather's hometown of Houston in 1962 to "issue a call to explore space." The journalist was so enthralled with the notion he remembered the grass at the stadium where Kennedy spoke was damp.

Who knew he would return to Texas to be cut down at his prime?

So, when Rather told his wife, Jean, how he was hanging in there when she asked about his wellbeing, he told her "steady."

One of Rather's favorite go-to words, "steady" as she goes is a word Americans trying to maintain their sense of dignity and duty could live by. He borrowed it from his father after catching rheumatic fever as a boy. He coined it to describe a grieving country in 1963. He maintains it today as a veteran journalist trying to make sense of a divided nation.

When we face what seem to be insurmountable odds, steady is a condition that a reasonable patriot should have.

In chapter after chapter and section after section – from the "Freedom" to vote to the "Character" of courage – Rather makes the case for Americans to build off our love of country and principles we believe in to carry us.

And to borrow from an old chant from the gay rights movement, "our strength is our diversity." As clarified in the book's chapter on immigration, this means we can learn from our unique nature as a people united by a common good.

Rather recognizes this and reminds us to hold on to these self-evident truths.

- Please join in the discussion via commenting. Feel free to pose questions.
 - **Questions:**

What is the parallel between the “What Unites Us” and the divisive politics we witness today? What do you think unites us as U.S. citizens? What does it mean to be a patriot?
 - The **next book** will be the novel “Dying Words” by K. Patrick Conner. Synopsis: “Written with humor and pathos, ‘Dying Words’ is a novel about mortality and remembrance, the story of an aging newspaper reporter less afraid of dying than of being forgotten. For the past 11 years, Graydon Hubbell, an aging reporter for the *San Francisco Chronicle*, has been assigned to write obituaries, working in a corner of the newsroom that has long been referred to as Section Eight, an oblique reference to the section of the U.S. military code that provides for a discharge on the grounds of insanity.” The review will be posted March 1.
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Opinion: Plan could be a major disrupter of health care system

By J.B. Silvers, The Conversation

Amazon, Berkshire Hathaway and JPMorgan Chase’s announcement that they will create an independent company to offer health care to their employees “free from profit-making incentives and constraints” sent a shock through the health care industry, with share prices of some incumbents tumbling on

Jan. 30.

Of course, this is not a surprise since anything Amazon, for one, takes on shakes the incumbents. But this one might be different.

As a former health insurance CEO and professor, I see that, based on their history and financial power, this new company could be a disruptive force in the industry.

A complex system

While most people experience insurance and doctors as the face of the health care sector, the moving parts of health care are much more complex. Only recently have doctors and insurers even been able to talk the same language through a massive federally financed move toward electronic medical records. And even then, insurers talk in terms of billing codes, while doctors deal with diagnoses and outcomes.

The marriage of the two through new organizational forms such as Accountable Care Organizations and payment units like bundled payments – for something like a hip or knee replacement, for example – show promise that the elements can collaborate but only in defined areas. Mainly these approaches are designed to bring the most excessive doctors and hospitals back toward the average in terms of cost. But even average health care costs are too high, and the outcomes are too poor to satisfy most Americans.

Into this maelstrom comes the party with the most to gain and the best leverage to change the system – and I mean employers, not the government.

Most insurance isn't really insurance

You may not know that most employer-based “insurance” isn't insurance at all. It's just a way for a contracted entity that looks like an insurer to act as a purchasing agent and

paymaster for the real deep pockets: the self-insured employer.

Any employer with at least 100 or 200 employees can do much better just writing the check for what is spent on health care rather than paying an insurance company to bear the risk. They only have to have “reinsurance” to cover the costs above the level that they can finance themselves.

It is interesting to note that one of the largest U.S. reinsurance companies, Gen Re, is at the core of Berkshire Hathaway’s empire.

Clearly, there’s a potentially powerful force for change in the self-insured employer who, in aggregate, covers over 100 million people and is exempted from much state regulation by federal law.

In the past, there have been five major ways these employers have attacked the health care “tapeworm” described by Warren Buffett. Through their insurance company agents, they can:

- Hire a manager to do it (i.e., managed care), or pay them a flat amount each year (i.e., fixed amount per employee per year), or both.
- Channel employees to the “best” providers (i.e., narrow networks and direct contracts with centers of excellence).
- Change the incentives for the employee to be more careful (i.e., high deductible health plans) and help them save for routine needs through, for instance, health savings accounts.
- Encourage them to shop more carefully with online comparison tools for quality plus differential co-pays for favored providers.
- Maintain a lifestyle of “wellness” through, for example offering membership to health clubs, discounts for Fitbit health tracking devices, or a direct bonus or

penalty.

But none of these have done the job.

So what do these three big disrupters expect?

Besides being large employers themselves, Warren Buffett knows insurance through his Gen Re reinsurance company. Amazon has taught everyone how to shop far better online than in stores, and JPMorgan has had extensive experience with Health Savings Accounts, which are tax-sheltered savings accounts paired with high-deductible insurance policies that eligible people can use to pay for health care costs. They know the elements of the past playbook individually.

But their announcement signals that the goal is something much more: an integrated technology-driven approach to all facets of health care beyond the earlier individual initiatives.

While they did not mention the changes that must happen in the delivery sector, implied is the assumption that doctors and hospitals will adapt to this new world, holding down their costs, making prices more transparent, and innovating in their physical and electronic delivery of care.

While these issues are all important, this partnership does not address other problems of the broken U.S. health care system and its ever-expanding costs. Also of concern are the role of skyrocketing drug prices protected by patents and direct-to-consumer advertising; expensive end-of-life decisions; explosive potential use of genetic information; and prevention and management of chronic conditions derived from personal choices.

And the most critical factor in the success of their plan is the fact that the doctor knows the medical facts better than the patient or purchaser. We want a medical expert to tell us what must be done in any situation. But, when the incentives for the physician agent are not aligned with broader

objectives, their decisions may be less than optimal, and this is often the case.

One has to applaud the initiative if you are outside the health care sector and fear it if you are inside. When these three threaten to disrupt an industry, those in it had better listen carefully and adapt as quickly as they can.

J.B. Silvers is a professor of health finance at the Weatherhead School of Management & School of Medicine at Case Western Reserve University.

Corporate sponsors of Olympians enter the #MeToo fray

By George B. Cunningham

Revelations brought to light during the trial of sports doctor Larry Nassar are reverberating.

High-level resignations are piling up at Michigan State University, the physician's former employer. USA Gymnastics, the team's governing body, has severed its ties with the Karolyi Ranch, the compound where many of the team's gold medalists say the physician sexually abused them, and its entire board is resigning. The U.S. Olympic Committee is under severe pressure from advocates.

The gymnastics scandal's shock waves also have financial implications. One day before Nassar's sentencing, AT&T suspended its USA Gymnastics sponsorship. A month earlier, Procter & Gamble severed ties with the organization as well.

Sexual abuse is a chronic condition that afflicts many other sports besides gymnastics. With the #MeToo and #TimesUp movements gaining momentum and their influence growing, might they affect the 2018 Winter Olympic Games, an event that traditionally commands substantial sums from sponsors? As a sport management professor who focuses on diversity and inclusion, my analysis leads me to believe that's quite likely.

Sponsorship at the Olympics

Since corporate sponsors and other outside sources are contributing about 35 percent of the U.S. Olympic Committee's \$34.47 million annual budget, their loss could prove financially devastating to U.S. Olympic teams and athletes.

Ever since the 1984 Los Angeles Summer Olympics, corporate sponsors have pitched in mightily with the nation's Olympic funding efforts.

Official sponsorships for the International Olympic Committee now top \$1 billion. That's a tenfold increase since the lead-up to the 1988 Summer Olympics.

Winter Games sponsorship funding generated by the host country has also soared, rising from \$163 million in 1998 to \$1.2 billion in 2014.

Team USA, or the collective group of U.S. Olympians and teams, currently has 18 corporate sponsors – deals that usually generate \$100 million over a four-year period. And the support does not stop there. Companies can support specific teams or individual athletes. Toyota, for example, is sponsoring the U.S. figure skating, speed skating and hockey teams.

Not exactly philanthropic

Though sponsors will frequently tout their support as helping Olympians achieve their goals, this largesse isn't purely

philanthropic. The fact is that corporations give athletes and teams money to enhance awareness of their brands and burnish their image with a lucrative marketing tool.

They achieve these goals by linking their name with successful athletes. Sponsors are placing a bet that consumers will feel good about Olympic contenders and winners, then they bank on some of that glow transferring to their brand. Sponsors strategically use marketing techniques to improve the odds of this happening.

The positive association set between the sport product and sponsor is key. What happens, though, when the sport product elicits negative feelings and attitudes? At that time, the association linkages turn negative, to the detriment of the sponsor. As a result, the sponsor is likely to suspend or terminate the relationship.

Companies tend to drop their endorsement packages when athletes generate negative press coverage. Examples include the uproar that followed Filipino boxer Manny Pacquiao's homophobic slurs and the fallout when Russian tennis star Maria Sharapova tried (and failed) to cover up her use of a banned performance-enhancing substance.

Failure to sever those ties can hurt the business bottom line. UC Davis Professor Victor Stango, for example, found that golfer Tiger Woods' extramarital affairs have cost the shareholders of his endorsers, including Nike, Gatorade and others, as much as \$12 billion.

The 2018 Olympics and #MeToo

Where, then, does this leave sponsors of the 2018 Olympics, Team USA and U.S. Olympic athletes?

On the one hand, some of the sponsorship packages have been in place for years, with sponsoring companies taking steps to leverage the relationships. Thus, the sunk costs are

considerable.

On the other hand, it is hard to imagine a time in recent years when the brand association of the U.S. Olympic team, as a whole, has been poorer. In the past year, both USA Swimming and USA Gymnastics have been rocked by sexual abuse accusations regarding coaches and other staff like Nassar. The calls for the U.S. Olympic Committee's leaders to resign grow louder by the day.

Over the past year, it has become clear that the nation no longer tolerates sexual abuse and harassment. Powerful men like movie mogul Harvey Weinstein, TV newsman Matt Lauer, and football coach Rich Rodriguez have had their prestige vanish and their careers collapse once their predations came to light.

American companies get this and can't afford to be associated with anyone tainted by this kind of scandal.

Though similar cases of sexual abuse and sexual harassment have not yet surfaced among Winter Olympic teams or athletes, the Olympic rings themselves are already tarnished.

It may be only be a matter of time before other organizations follow AT&T and Procter & Gamble's lead, and suspend or terminate their relationships with the Olympics until its leadership works harder to crack down on sexual abuse in the world of sports.

George B. Cunningham is a professor of sport management and faculty affiliate of the Women's and Gender Studies Program, and director of the Laboratory for Diversity in Sport at Texas A&M University.

Casino revenue stagnant in December

December was a rather flat month for Nevada casinos.

Statewide the gaming win was up 0.44 percent compared to 2016, with a total of \$960,384,350. On the South Shore the year-over-year revenue was down 1.24 percent at \$18,489,949. North Shore casinos were down 9.97 percent.

For the year, the statewide win was up 2.8 percent to \$11.57 billion.

All but one of the 18 sectors the Gaming Control Board tracks was up for 2017. The lone loser was North Lake Tahoe, which was off 2016 totals by 0.9 percent.

– Lake Tahoe News staff report

Study: Half of Calif.'s trees at risk of dying

By Ezra David Romero, Capital Public Radio

Half of California's vegetation is at a risk of dying because of warming temperatures, according to new UC Davis research.

"We're seeing that in California just in the last five or six years," said James Thorne, a research scientist with the Department of Environmental Science and Policy at the university. "We had a five-year long drought and then we had double precipitation. In the meantime, we've also seen some

very large wildfires.”

Even if greenhouse gas-emissions are reduced today, Thorne says around a quarter of the state’s trees and plants will be climate stressed by the end of the century.

Read the whole story

Chase from Truckee ends in SLT with parolee jailed

By Lake Tahoe News

A chase that started in Truckee on Wednesday involving a stolen vehicle ended in South Lake Tahoe with a Bay Area man taken into custody.

Raheem Ahmed Hanif, 35, of Rodeo was booked on grand theft auto, evading a police officer and resisting arrest. He was on parole, but for what was not immediately known.

The incident started the morning of Jan. 31. Truckee officers were alerted to a Jeep Renegade having been stolen from Reno. It was being tracked by its GPS system. Truckee officers stopped the vehicle, but then the suspect fled as they approached.

Truckee officers stopped the pursuit when the vehicle left the town limits.

GPS then traced the Jeep to Highway 89 south in Tahoe City, where California Highway Patrol officers joined the chase. The suspect refused to stop.

CHP and El Dorado County sheriff's deputies deployed spike strips that deflated the Jeep's tires. But the suspect kept going.

CHP officers then used a maneuver to force the fleeing vehicle to turn sideways. The vehicle came to a stop on Highway 89 near Eighth Street.

The suspect refused to surrender.

"CHP officers eventually approached the Jeep, broke out the right front window, and unlocked the door. Hanif was then taken into custody," officers said.

Bail was set at \$30,000.

Letter: Warm room degrading SLT neighborhood

Publisher's note: *This was sent to the South Lake Tahoe City Council and Lake Tahoe News.*

First let me say that I have been in and out of town intermittently this January so was not able to make the recent City Council meetings, or this would have been brought up in an open forum. However, the fact that no one from my neighborhood appeared at the recent meetings of the City Council is only because most of the people in my neighborhood work for a living and are not able to attend meetings in the middle of the day. It does not mean that we do not want to be heard or that everything is going well with the Warm Room.

While I am very glad that the children at South Tahoe Middle School and the Boys & Girls Club of Lake Tahoe have not had

any issues with the homeless due to the warm room that has not been the case for the residents of Bijou Pines.

My neighborhood has been severely and negatively impacted by the homeless ever since the warm room opened. I have had two incidents of property stolen from my front yard – which is fenced and gated. I have also been panhandled twice while walking my dog in my neighborhood, once with my 7-year-old niece who was scarred to death by this vagrant.

Several of the homes whose owners are not winter residents and whose property backs up to the warm room have literally had to board up their windows and doors with wooden shutters and metal bars. Others in the neighborhood have put in security systems or upgraded their security systems with outdoor surveillance cameras.

In addition to the objects being stolen from people's yards, we have had several incidents of mail being stolen out of our mailboxes. There have been incidents of the homeless walking around vacant summer homes and being questioned by the neighbors about what they are doing. The homeless are also marking the vacant summer homes in our neighborhood by piling up stones the way you would mark a trailhead, but they are marking empty homes. Why? All of these incidents have been reported by various residents. Many of the residents of Bijou Pines have lived here for 20 years or more, some for most of their lives and no one can remember ever having so many homeless roaming our neighborhood.

In a recent email sent to me by Marissa Muscat, the executive director for the Tahoe Coalition for the Homeless, I was told there were many people without shelter who congregated in the area or the warm room but did not stay there, thus, the Warm Room was not responsible for them. Well, that means very little to the residents of Bijou Pines as the homeless did not congregate in this area prior to the warm room opening. Bread & Broth has been at the Catholic Church for years and we have

never before experienced the problems we are now having in our neighborhood.

I have asked both Mayor Wendy David, and Marissa Muscat to come and walk my neighborhood with me so they could see for themselves the impact of the warm room on Bijou Pines, however to date neither has shown an interest.

As to the security officer who sits at the corner of Rufus Allen and Pickett in the mornings – not very attentive. I myself, have stood next to his car while he did paperwork and never looked up. How many homeless could have walked by while he filled out forms? Also there are three other main entrances into Bijou Pines in short walking distance from the warm room that have no security on them at all. None of the residents of Bijou Pines feels that the Tahoe Coalition for the Homeless is providing adequate security for our neighborhood.

To make matters worse, at a recent meeting of several concerned residents we found out that if one of us wanted to sell their home at this time we would have to declare that the warm room was within walking distance to our homes and depending how close your property was to the warm room your property value could be decreased by \$25,000. What right does the City Council have to devalue our property for the homeless?

While I feel very sorry for the homeless, the City Council should not have agreed to have the warm room back up to an historic residential neighborhood. To devalue our property in this manner is inexcusable.

I would like to remind the City Council that despite how sympathetic one might be to the homeless, they do not contribute to the city of South Lake Tahoe in any way. If anything, they strain our city's resources, and cause multiple problems for the residents. By contrast, my neighbors in Bijou Pines, work for a living, support themselves, take care of

their property, and put money back into our city.

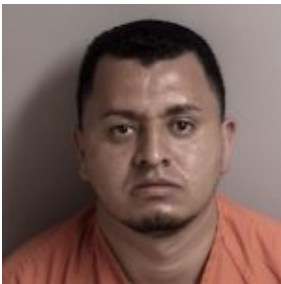
The residents of Bijou Pines pay their taxes, i.e. your salaries. I doubt that anyone in Bijou Pines will forget who on the City Council brought the homeless to our doorsteps.

Catherine Whelan, South Lake Tahoe

183-year prison sentence for ex-SLT hotel worker

A former South Lake Tahoe hotel maintenance worker is going to prison for the rest of his life for the assault of 22-year-old exchange student.

Manuel Ovidio Ramos-Munoz was sentenced this month to 183 years to life this month.



Manuel Ovidio
Ramos-Munoz

“The young woman, who had only been in the country for a little more than a week, was sitting on the front steps of her hotel room talking on the phone when Ramos-Munoz snuck up behind her and put a knife to her throat. Ramos-Munoz dragged the victim across the street into a dark parking lot, behind large metal containers at the rear of the parking lot. He

threatened to kill the terrified victim if she did not remain silent. Once concealed behind the large containers, Ramos-Munoz repeatedly and violently physically and sexually assaulted the victim, causing injuries to her head, face, and body,” according to the El Dorado County District Attorney’s Office.

A jury last fall found Ramos-Munoz guilty of seven felony counts, including kidnapping for the purpose of committing a sexual assault, as well as six additional counts and numerous special allegations relating to the subsequent sexual assault of the victim with the use of a knife.

At the sentencing Judge Kenneth Melikian called Ramos-Munoz’s actions “beyond reprehensible” and stated that on the day of the crime Ramos-Munoz had “put the victim in hell,” adding that it was a hell she had probably not yet escaped.

– *Lake Tahoe News staff report*

Can scientists learn to make nature forecasts?

By Michael Dietz, The Conversation

Imagine that spring has finally arrived and you’re planning your weekend. The weather forecast looks great. You could go to the beach – but what if it’s closed because of an algal bloom? Maybe you could go for a hike – will the leaves be out yet? What might be in flower? Will the migratory birds be back? Oh, and you heard last year was bad for ticks – will this spring be better or worse?

We all take weather forecasts for granted, so why isn't there a "nature forecast" to answer these questions? Enter the new scientific field of ecological forecasting. Ecologists have long sought to understand the natural world, but only recently have they begun to think systematically about forecasting.

Much of the current research in ecological forecasting is focused on long-term projections. It considers questions that play out over decades to centuries, such as how species may shift their ranges in response to climate change, or whether forests will continue to take up carbon dioxide from the atmosphere.

However, in a new article that I co-authored with 18 other scientists from universities, private research institutes and the U.S. Geological Survey, we argue that focusing on near-term forecasts over spans of days, seasons and years will help us better understand, manage and conserve ecosystems. Developing this ability would be a win-win for both science and society.

The benefits of forecasting

Beyond helping people plan their weekends, ecological forecasts will improve decision-making in agriculture, forestry, fisheries and other industries. They will help private landowners, local governments and state and federal agencies better manage and conserve our land, water and coastlines, for example by warning of events such as pest outbreaks and harmful algal blooms. They will improve public health through better forecasts of infectious disease outbreaks and better planning in anticipation of famine, wildfire and other natural disasters.

Ecological forecasts will also deepen our understanding of the world around us, and of how human activities are altering it. Forecasting formalizes the cycle between prediction and testing that is at the heart of the scientific method, and

repeats it on a much quicker cycle. It can accelerate the pace of discovery in the environmental sciences at this critical time of rapid environmental change.

New tools and technology

Big data is driving many of the advances in ecological forecasting. Today ecologists have orders of magnitude more data compared to just a decade ago, thanks to sustained public funding for basic science and environmental monitoring. This investment has given us better sensors, satellites and organizations such as the National Ecological Observatory Network, which collects high-quality data from 81 field sites across the United States and Puerto Rico. At the same time, cultural shifts across funding agencies, research networks and journals have made that data more open and available.

Digital technologies make it possible to access this information more quickly than in the past. Field notebooks have given way to tablets and cell networks that can stream new data into supercomputers in real time. Computing advances allow us to build better models and use more sophisticated statistical methods to produce forecasts.

Technical and social challenges

So far, though, ecological forecasting has not kept pace with advances in data and technology. In our article, we lay out a road map for accelerating the field by tackling the bottlenecks slowing us down.

Some of these bottlenecks are technical, such as better integrating the streams of data that are now available from many different sources, such as field studies, sensor networks and satellite observations.

Other challenges involve human choices. Ecologists need to spend more time engaged in two-way communication with stakeholders, rather than just pushing out the latest research

to decision-makers. And we need better ways to transfer state-of-the-art research from universities to agencies and private industry.

Perhaps most limiting is that ecologists traditionally have not been taught forecasting concepts and methods. But as I have written, this situation is changing. There now are summer workshops and a growing number of university courses in ecological forecasting. Prediction is leading to new theories that aim to unify different parts of ecology.

Ecology's choice

At the dawn of numerical weather prediction in the 1950s, scientists at the National Weather Service faced a choice. They could either wait to start forecasting until the underlying research, models and tools improved, or proceed immediately with making forecasts and learn by doing. They chose the second path. It proved harder than expected – but had they waited, they likely would have failed because they would have missed a critical window when experts and agencies were willing to make major investments in this effort.

Up to now, ecologists have generally adhered to the first, more conservative path. But in this time of rapid environmental change, the societal need and technological capacity for forecasting have never been greater. The forecasts won't always be right, especially as the field develops, but failure is part of learning. The time for ecologists to start forecasting is now.

Michael Dietze is an associate professor of Earth and environment at Boston University.