

# Scared of T. rex? 2.5 billion of them roamed Earth (but not all at once)

BY SETH BORENSTEIN

AP Science Writer

One Tyrannosaurus rex seems scary enough. Now picture 2.5 billion of them. That's how many of the fierce dinosaur king probably roamed Earth over the course of a couple million years, a new study finds.

Using calculations based on body size, sexual maturity and the creatures' energy needs, a team at the University of California, Berkeley figured out just how many T. rex lived over 127,000 generations, according to a study in Thursday's journal *Science*. It's a first-of-its-kind number, but just an estimate with a margin of error that is the size of a T. rex.

"That's a lot of jaws," said study lead author Charles Marshall, director of the University of California Museum of Paleontology. "That's a lot of teeth. That's a lot of claws."

The species roamed North America for about 1.2 million to 3.6 million years, meaning the T. rex population density was small at any one moment. There would be about two in a place the size of the Washington, D.C., or 3,800 in California, the study said.

"Probably like a lot of people, I literally did a double-take to make sure that my eyes hadn't deceived me when I first read that 2.5 billion T. rexes have ever lived," said Macalester College paleobiologist Kristi Curry Rogers, who wasn't part of the study.

Marshall said the estimate helps scientists figure the preservation rate of T. rex fossils and underscores how lucky the world is to know about them at all. About 100 or so T. rex fossils have been found — 32 of them with enough material to figure they are adults. If there were 2.5 million T. rex instead of 2.5 billion, we would probably have never known they existed, he said.

Marshall's team calculated the population by using a general biology rule of thumb that says the bigger the animal, the less dense its population. Then they added estimates of how much energy the carnivorous T. rex needed to stay alive — somewhere between a Komodo dragon and a



A lifesize model of a Tyrannosaurus rex terrifies children at a zoo in Hungary.

AP file

lion. The more energy required, the less dense the population. They also factored in that the T. rex reached sexual maturity somewhere around 14 to 17 years old and lived at most 28 years.

Given uncertainties in the creatures' generation length, range and how long they roamed, the Berkeley team said the

total population could be as little as 140 million or as much as 42 billion with 2.4 billion as the middle value.

The science about the biggest land-living carnivores of all time is important, "but the truth, as I see it, is that this kind of thing is just very cool," said Purdue University geology professor James Farlow.

## Hospital

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"People are working double shifts, being mandated — they're working so many hours to try and cover this need."

### Critical staff shortage

Low staffing has plagued the hospital for months.

While 116 staffers have contracted COVID-19 over the past year, more than 180 aren't coming to work because they or a family member are medically fragile — or they're unable to find child care.

The hospital has been offering staff paid time off for child care. But some staffers say that employees without children have taken the time off, and the hospital does not check whether employees using the time have children. Some staffers say that has created an increased burden on employees who don't take the time off.

The state hospital did not immediately confirm details about staff using child care time.

To deal with the staff shortage, the hospital in November launched an emergency staffing plan with five "waves" of staffing to replenish the ranks as the number of staffers on coronavirus-related leave grew.

The first three waves call for hospital staffers to be reassigned in order to fill vacancies. The fourth draws administrators from throughout the Oregon Health Authority to help staff the hospital floor. The fifth requires the hospital to call in the Oregon National Guard.

The hospital is now in the third wave. But Superintendent Dolly Matteucci said Tuesday administrators planned to meet this week to discuss whether to bring in health authority staffers earlier than anticipated.

"We have less available in-house resources than we thought we would when we constructed the plan," she told *The Oregonian*. "We are engaging in those planning conversations currently."

The shortage has also prompted administrators to "mandate" record numbers of employees, requiring them to keep working past the end of their shifts without prior warning.

Last weekend, for example, administrators required 52 employees to work beyond their scheduled hours. And even then, the extra help was still not enough to meet minimum staffing requirements.

In response to the shortages, the hospital's SEIU Local 503 union chapter on Tuesday began circulating a petition calling for administrators to find an immediate solution to the growing problem.

"We are concerned that the Emergency Staffing Plan has put numerous people with limited experience in protecting residents and staff onto units creating a less safe environment," states the petition, which had been signed by at least 140 hospital staffers as of Friday.

Problems stem not only from staffing shortages but also from abrupt changes to teams

on the hospital floor.

Roberta O'Dell, who recently retired after a 31-year career at the hospital, said administrators gave members of her team less than a week of notice before splitting them up — a move she claimed hurt employees and their patients.

"I think morale is very low," O'Dell said. "I've seen a lot of changes at that hospital, and these are not good."

A worker from the hospital's vocational services program — one of several employees interviewed by *The Oregonian* who asked not to be named for fear of retaliation from administrators — said there are often as few as four staffers on a unit with 20 or more patients.

### Worsening assaults

The staffing shortage has also taken a physical toll on employees, who say they've experienced more frequent and serious assaults by patients over the past several months.

At least eight workers were injured last weekend alone, including three who required hospital treatment, according to staffers. In one case, an employee suffered facial lacerations from the sharp edge of a plastic chair wielded by a patient.

The state hospital confirmed three staffers were hospitalized last weekend. Rebeka Gipson-King, a spokesperson for the hospital, said not every staff member who goes to the hospital reports their injuries.

Other assaults from past months have been similarly serious.

On March 19, a patient broke a staff member's arm. And in December, a patient wrapped a piece of clothing around an employee's neck — requiring two other workers to wrestle the patient away.

While such stories pour in, state hospital data shows the number of reported assault cases — ranging from a patient spitting at a staffer to a patient causing serious physical injury — has actually taken a slight downturn. The hospital averaged nearly 55 assaults per month in 2020, as opposed to an average of 56.5 per month between January 2016 and December of last year.

O'Dell, the recent hospital retiree, said frequent changes in staffing are partly to blame for the worsening assaults.

"Patients aren't familiar with these staff at all," she said. "You don't have a connection with the patients. You don't know what their triggers are. You don't know their propensity to either verbally or physically assault you."

Patients, too, are feeling the strain.

Some tried to start a riot to demand better food privileges last weekend, according to another mental health technician.

"Apparently, patients are listening to staff talk about how we're short and don't have any staff, so they planned a moment when they were low and tried to start a riot," the technician said in a text message.

The state hospital did not confirm the attempted riot.

## Vaccines

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"I don't really anticipate that they're going to want it stretch it out a bit longer."

Fauci, who is President Joe Biden's chief medical adviser, said he believed that federal regulators could bring the shots back with restrictions based on age or gender or with a blanket warning, so that it is administered in a way "a little bit different than we were before the pause."

The J&J vaccine has been in limbo after the CDC and the Food and Drug Administration said this month they needed more evidence to decide if a

handful of unusual blood clots were linked to the shot — and if so, how big the risk is.

The reports are rare — six cases out of more than 7 million U.S. inoculations with J&J vaccine. The clots were found in six women between the ages of 18 and 48. One person died.

The acting FDA commissioner had said she expected the pause to last only a matter of days. Still, the decision triggered swift action in Europe and elsewhere.

Fauci said he doubted that the U.S. would permanently halt use of the J&J vaccine.

"I don't think that's going to happen," he said. "The pause was to take a look, make sure

we know all the information we can have within that timeframe, and also warn some of the physicians out there who might see people, particularly women, who have this particular adverse event, that they treat them properly."

More than 6.8 million doses of the J&J vaccine have been given in the U.S., the vast majority with no or mild side effects.

### Next phase for vaccinations in Oregon

Starting Monday, anyone 16 and older can sign up for a vaccination. In Central Oregon, you can do so by going to [www.centraloregoncovidvaccine.com](http://www.centraloregoncovidvaccine.com).

More than 3.4 million of Oregon's 4.2 million residents will now be eligible for vaccines.

That's over 80% of the population. The state will become one of the last in the nation to meet Biden's deadline — just in time — by joining five others opening eligibility to all by April 19.

Data from the Oregon Health Authority on Sunday showed the state has surpassed 2.5 million vaccinations, with more than 1 million people being fully vaccinated against COVID-19. That means about a quarter of the state's total population is fully vaccinated.

Information from *The Oregonian*, the *Corvallis Gazette-Times* and *The Bulletin* is included in this report.

## DEAR ABBY

Write to Dear Abby online at [dearabby.com](http://dearabby.com) or by mail at P.O. Box 69440, Los Angeles, CA 90069



**Dear Abby:** I am a woman who has been through a lot. I grew up thinking my grandmother was my mother, my mother was my sister, my uncle was my brother, and my own siblings my nieces and nephews. A "family issue" brought it all out in the open, and now I am estranged from my family.

My grandmother who adopted me passed away a few years ago. The issue was lies and the fact that I was molested, which is why my grandmother stepped in. How do I explain to my children, 6 and 9, that we don't have family on my side? They have been asking because my husband is very close with his own family.

— *Estranged in New Mexico*

**Dear Estranged:** Your family situation is complicated, and I don't think it would be appropriate for you to reveal the details until your children are quite a bit more mature. Lies, cover-ups and child molestation are valid reasons to have distanced yourself.

In the meantime, tell them you will explain when they are older. At some point they may need the information in case any of your relatives try to contact them in the future.

**Dear Abby:** I broke things off with my ex-husband in 2011. His dad passed away in 2013, and I have just learned that his mother died two months ago. I heard through the wife of his friend that he didn't take it well, so I sent him a sympathy card with my phone number in case he wanted to talk.

Today I found out he eats only one meal a day or just has one of those shakes. He insisted he's fine, but I don't

think so. It sounds like he's still not handling it well. I'm worried that he's going to waste away.

We live in the same state but in two different cities. I still love him, and I'm trying to help him. How can I do that?

— *Worried Ex in Ohio*

**Dear Ex:** Does your ex have relatives who live closer to him than you do? If so, contact them and express your concerns so perhaps they can check on him. However, if he doesn't, consider looking in on him yourself. If you do, it may not only ease your mind but also resuscitate your relationship, if he is open to a reconciliation.

**Dear Abby:** I am a 64-year-old woman. For once in my life, my hair is long, about elbow length. My son visits me about once every three months because he lives an hour's drive away. Today when he arrived, the first words out of his mouth were, "You look like a witch!" It made me feel very sad. He then proceeded to tell me no one over the age of 40 should wear long hair. What do you think? I've always been neat and clean.

— *Sad Mom in Colorado*

**Dear Sad Mom:** I think that at age 64, you can wear your hair any way you like it. Many women (and men) have allowed their hair to grow since the pandemic began, regardless of age. (I happen to know an 85-year-old woman whose lush, shiny hair is down to the middle of her back, and she looks great.) If you like your hair long, keep it that way. Do not allow your tactless son to be your fashion arbiter. Go, Rapunzel!

## YOUR HOROSCOPE

By Madalyn Aslan

Stars show the kind of day you'll have

★★★★★ DYNAMIC | ★★★★★ POSITIVE | ★★★ AVERAGE | ★★ SO-SO | ★ DIFFICULT

**HAPPY BIRTHDAY FOR MONDAY, APRIL 19, 2021:** Sharp, spontaneous and vivacious, all types of people have always surrounded you. This year, you continue to diversify your circle, whether in a competitive field or working for a nonprofit. Make time for outdoor activities since staying fit allows you to maintain a busy schedule. If you stay frugal, your finances continue to grow steadily. If single, let your guard down. If attached, talk less and listen more. TAURUS is sensual.

### ARIES (March 21-April 19)

★★★★ A chance encounter will make you more curious about your family tree. Browse and register on ancestry websites. You will discover where your roots lie, but step back if searching becomes too obsessive. Tonight: Create a healthy eating plan.

### TAURUS (April 20-May 20)

★★★ Speak up, and people will take you seriously. If you are insecure about your abilities, just be passionate and honest about what you want to say. Practice in front of the mirror. You'll become more confident. Tonight: Sing along to oldies.

### GEMINI (May 21-June 20)

★★★★ Extra expenses can impact your spending habits. Take a break from buying on credit, and you'll be in the black sooner than you think. No more eating on the run. Take time to savor your food. Tonight: Fun with friends.

### CANCER (June 21-July 22)

★★★★ Get out of your comfort zone. Do something you haven't tried before. It could be something simple like changing your exercise routine, shopping at a new venue, or trying a food that has negative associations from the past. Tonight: Yummy dessert.

### LEO (July 23-Aug. 22)

★★★ Don't fret if you are more introspective than usual. Get a raincheck on an invitation to lunch or dinner. Take advantage of your philosophical mood. Turn thoughts into a blog that you share with a special few people. Tonight: Be apologetic.

### VIRGO (Aug. 23-Sept. 22)

★★★★ Avoid controversial discussions at work and at home. Meet up with friends later who love to laugh at the drop of a hat. Exchange jokes, funny stories and light gossip. Listen to what others have to say. Tonight: Bedtime reading.

### LIBRA (Sept. 23-Oct. 22)

★★★★ Make a plan today and follow it through. Don't think about other things you'd rather be doing. Choose time management over procrastination. Look up a former co-worker you've been meaning to contact. Exchange ideas about a possible collaboration. Tonight: Children's hour.

### SCORPIO (Oct. 23-Nov. 21)

★★★ Today could fill you with nostalgia about school days. Get out your yearbook or alumni newsletter. Look up old friends online. Be prepared to be happy and sad about what they are doing. Tonight: Watch a video and laugh out loud.

### SAGITTARIUS (Nov. 22-Dec. 21)

★★★★ Earning more money is on your mind. Pursue a side retail business with friends whose judgment and honesty you trust. Begin by selling clothes that no longer fit on eBay or Etsy and see how it progresses. Tonight: Family discussions.

### CAPRICORN (Dec. 22-Jan. 19)

★★★★ Compromise should not be too difficult today. Be on the alert, as someone close may call on you for an objective opinion. Be tactful since you do not want to offend those you love. Tonight: Romance leads the way.

### AQUARIUS (Jan. 20-Feb. 18)

★★★ Fresh air and light exercise serve you well since you have been paying more attention to your health and well-being. Prepare fresh fruit platters and salad. Find condiments and dressings that are low-cal but tasty. Tonight: Discuss summer plans.

### PISCES (Feb. 19-March 20)

★★★★ A nostalgic memory can reignite a creative passion from your childhood or teenage years. Take a class or join a group to test out your talent. Communicate with someone you meet whose artistic tastes mirror your own. Tonight: Play mood music.

Find it all online [bendbulletin.com](http://bendbulletin.com)