A chance for the Pluto-huggers? Scientist leads effort to restore underdog's planetary stature

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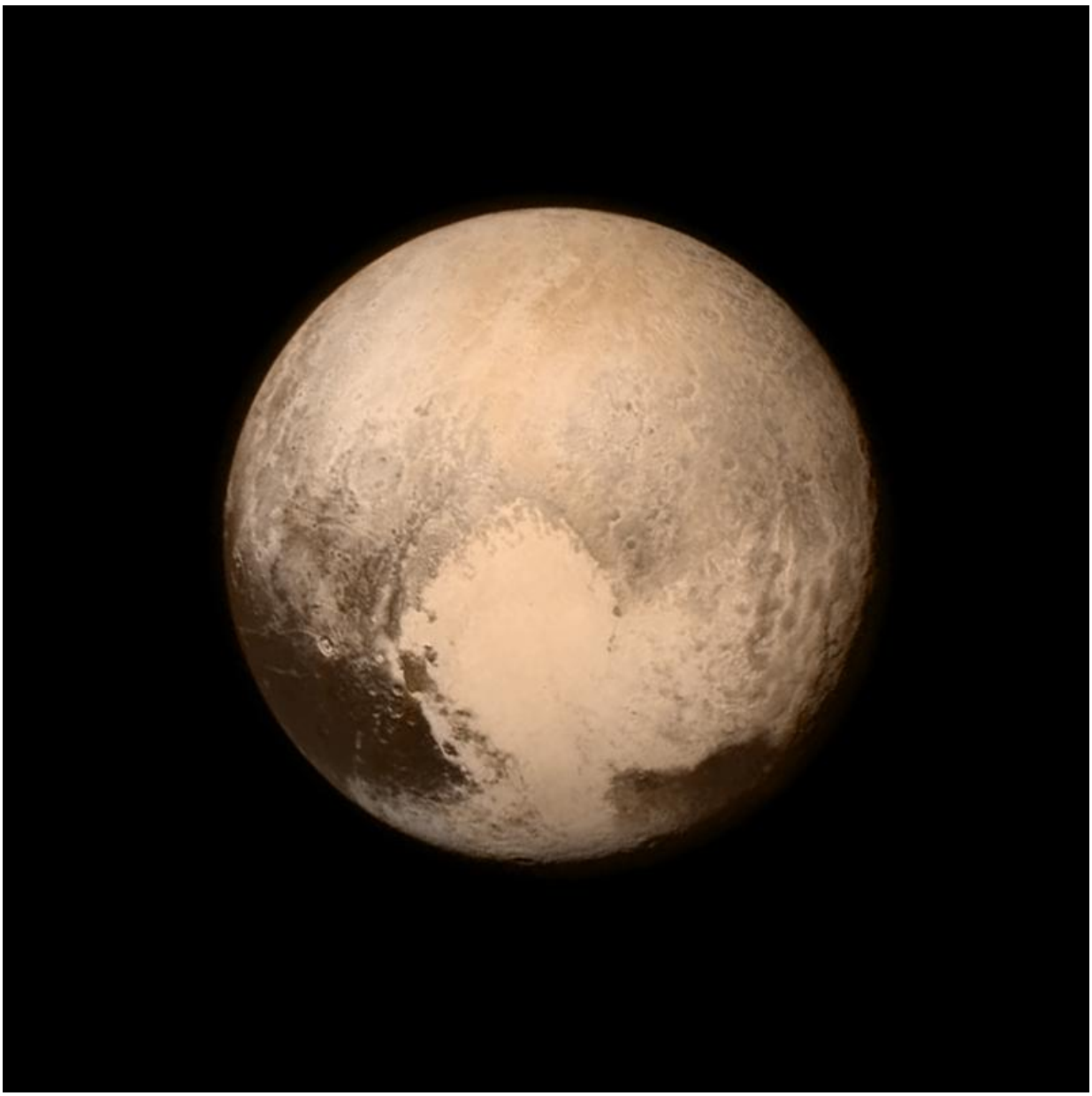

Pluto nearly fills the frame in this image from the Long Range Reconnaissance Imager (LORRI) aboard NASA's New Horizons spacecraft, taken on July 13, 2015 when the spacecraft was 476,000 miles (768,000 kilometers) from the surface. This is the last and most detailed image sent to Earth before the spacecraft's closest approach to Pluto on July 14. The color image has been combined with lower-resolution color information from the Ralph instrument that was acquired earlier on July 13. This view is dominated by the large, bright feature informally named the "heart," which measures approximately 1,000 miles (1,600 kilometers) across. The heart borders darker equatorial terrains, and the mottled terrain to its east (right) are complex. However, even at this resolution, much of the heart's interior appears remarkably featureless—possibly a sign of ongoing geologic processes. Credit: NASA/APL/SwRI

Ejected a decade ago from its place among the planets, the distant, icy world of Pluto still has its admirers.

The runt of the litter and ninth in line from the sun, Pluto was - for 75 years after its discovery - considered a peer of hefty Jupiter, Saturn and Uranus. And then one day it wasn't.

"People like to root for the underdog," said Kirby Runyon, a Johns Hopkins University scientist behind a renewed effort to restore Pluto's lost title.

Runyon and some leading planetary scientists have launched what might be the best shot in years at returning the icy rock now known as a "dwarf planet" to what they consider its rightful orbital place. And Pluto wouldn't be the only one up for a promotion.

Its advocates' generous definition of a planet would include Earth's moon

and crowd the cosmic neighborhood with 110 planets. The matter will be considered next week at the Lunar and Planetary Science Conference in Texas.

Runyon, 31, a doctoral candidate in planetary geology, recently waded into a long-simmering debate with the biggest names in astronomy.

"This is really just a Pluto-nostalgia thing dressed up like science," said renowned planet hunter Mike Brown, an astronomer at the California Institute of Technology, who literally wrote the book on Pluto's ouster, called: "How I Killed Pluto and Why It Had It Coming."

"The Pluto-huggers think this is their chance," Brown said.

Pluto's popularity surged after a NASA flyby in the summer of 2015 revealed ice mountains, hazy clouds, canyons and cliffs, capturing imaginations everywhere. Images even revealed evidence of volcanoes. Admirers among the public were invited to suggest mythology-themed names for these Earth-like features.

"Dear Pluto, lookin' good. But you're still a dwarf planet - get over it. Love, Neil deGrasse Tyson," the celebrity astrophysicist and director of Hayden Planetarium in New York City, wrote on Twitter at the time.

Tyson and Brown gravitate toward the 237 astronomers who convened in Prague in August 2006 and voted Pluto out of the planet club. The controversial vote by the International Astronomical Union - 157 members were opposed - rewrote the universal definition of the planet. Overnight, Pluto was relegated to dwarf planet status.

The IAU's new criteria required that a full planet must "clear the neighborhood around its orbit," meaning it must gravitationally dominate its surroundings and slingshot away debris.

"This was a hail Mary attempt on the part of the IAU to declassify Pluto," Runyon said. "No planet has totally cleared its orbit."

Even mighty Jupiter has a cloud of asteroids. The strength of a planet's slingshot forces decrease as it gets farther from the sun. Earth wouldn't clear the debris way out in Pluto's neighborhood, Runyon wrote.

So he co-authored and proposed a new definition with scientist Alan Stern, the principal investigator for NASA's Pluto flyby.

"Among planetary scientists, almost no one considers it anything but laughable," Stern said. "The astronomers went into an area they don't own or know very much about, and they made a mess of it."

Here lies the rift over the Pluto identity: on one side, astronomers, and on the other, planetary scientists.

"If you're off in the woods and need emergency brain surgery, but the only doctor around is a foot doctor, you better say your prayers," Stern said. "This is what happened: The podiatrists got hold of the brain surgery of planetary science."

Brown, the Pluto killer, discovered in 2005 another shape in that far-flung neighborhood, and it was the densest one yet. His discovery of Eris, a little smaller but denser than Pluto, partly prompted the IAU to reconsider what makes a planet, well, a planet and rewrite the definition.

"The only reason Pluto was ever considered a planet was because people were grossly mistaken with how big it was," Brown said.

The New York Times reported the discovery in 1930 with an article suggesting Pluto could be bigger than Jupiter - it wasn't. In the following decades, the perceived size of Pluto would shrink and shrink.

Now Pluto is understood to be roughly the size of North America. One could line 59 Plutos across Jupiter's equator. By volume, more than 200,000 Plutos could fit inside Jupiter. Pluto's closest neighbor is Neptune.

"If Neptune were a Chevy Impala parked at the curb, ask yourself what car would Pluto be? ... It would be a matchbox car," Tyson said in an interview with TV host and comedian Stephen Colbert. During his appearance, Tyson wore a planetary necktie that omitted Pluto.

"If it's not on a casual accessory owned by Neil deGrasse Tyson; it's not worth knowing," Colbert quipped. "Forget it, forget it, who cares?"

Al Tombaugh sure does. His father was just 24 years old and farm-raised, the sort who taught himself to build telescopes and scout distant space, when he spotted Pluto in February 1930 from Lowell Observatory in Flagstaff, Ariz. Clyde Tombaugh became the first American to discover a planet, and he would die about 10 years before his find was reclassified as a dwarf.

His son, Al, learned of the vote when a reporter called soon after.

"It caught me completely off-guard, me and my mother and my sister," said Tombaugh, a retired banker and contractor in New Mexico. "It's just tremendously flawed and it's unfortunate it was ever brought for a vote ... It took (Pluto) out of the public view."

Pluto's fans at New Mexico State University carried picket signs proclaiming "Size doesn't matter!" The debate spilled into popular culture with cartoons of a sad-eyed pup beside Mickey Mouse. There were petitions and ironic T-shirts: "It's okay, Pluto. I'm not a planet either." The defiant city council in Madison, Wis., adopted a resolution declaring Pluto "Madison's ninth planet."

Science teachers around the world changed lessons, took down posters, added disclaimers to textbooks.

"The students got it. They're not as emotional about it as the adults and teachers were. Some of them were fighting mad over it," said Tim Kent, who runs a traveling space lab for Baltimore County schools. "I understand why they did it. There may be 2,000 rocks out there. How can you call them all planets?"

The reworked IAU definition maintains old requirements that planets must orbit the sun and have enough mass and gravity to wrap themselves into a ball.

"If you look at the solar system with fresh eyes," Brown said, "you realize there are eight dominant bodies and everything else is being pushed around by these eight bodies."

Runyon, however, proposed a definition that dramatically eases the standards: "Round objects in space that are smaller than stars," he wrote.

But there's an exact science packed in that simplicity. Any round planet must possess enough mass and gravity to pull itself into a sphere. Tiny Pluto meets this criteria, so does Jupiter.

"Nobody is going to say a hummingbird femur isn't a femur just because it's little," Runyon said.

Anyway, he isn't asking the IAU to accept his definition. He hopes it catches on among science teachers and students. The astronomers are more concerned with the external orbit-clearing forces, he said.

"If planets were people, the IAU would define people on who they hung out with and what bars they visited versus who they are on the inside," he

said.

It's a message he hopes resonates with admirers everywhere of one former runty, underdog planet.