

US Bank donates to Liberty Theater



Cindy Johnson/Submitted Photo

From left: Kevin LaCoste, U.S. Bank regional president, and Liberty Theater Board members Darren Orange, Betty Smith, Jennifer Canessa, Rosemary Baker-Monaghan, Christine Lolich and Steve Forester. U.S. Bank representatives said they are proud to support the arts in our community and to be part of the kick off to the Liberty Theater 2016 season, which includes Art a la cARTE, Lady Liberty and Judy Collins.



Hubble Collaboration via AP

The globular star cluster 47 Tucanae photographed by the Hubble Space Telescope. On Wednesday, Rosanne DiStefano of the Harvard-Smithsonian Center for Astrophysics in Cambridge, Mass., said that clusters of stars on the fringes of our Milky Way galaxy may be home to intelligent life. DiStefano presented her theory at the American Astronomical Society's annual meeting in Kissimmee, Fla.

Star clusters might host intelligent life

By MARCIA DUNN
AP Aerospace Writer

KISSIMMEE, Fla. — Densely packed clusters of stars on the fringes of our Milky Way galaxy may be home to intelligent life. That's the word from an astrophysicist who's new to probing extraterrestrial territory.

The approximately 150 globular clusters in our galaxy are old and stable, a plus for any civilization, said Rosanne Di Stefano of the Harvard-Smithsonian Center for Astrophysics in Cambridge, Massachusetts. In addition, so many stars are clumped together it would be easy to hop from one place to another, keeping an advanced society going.

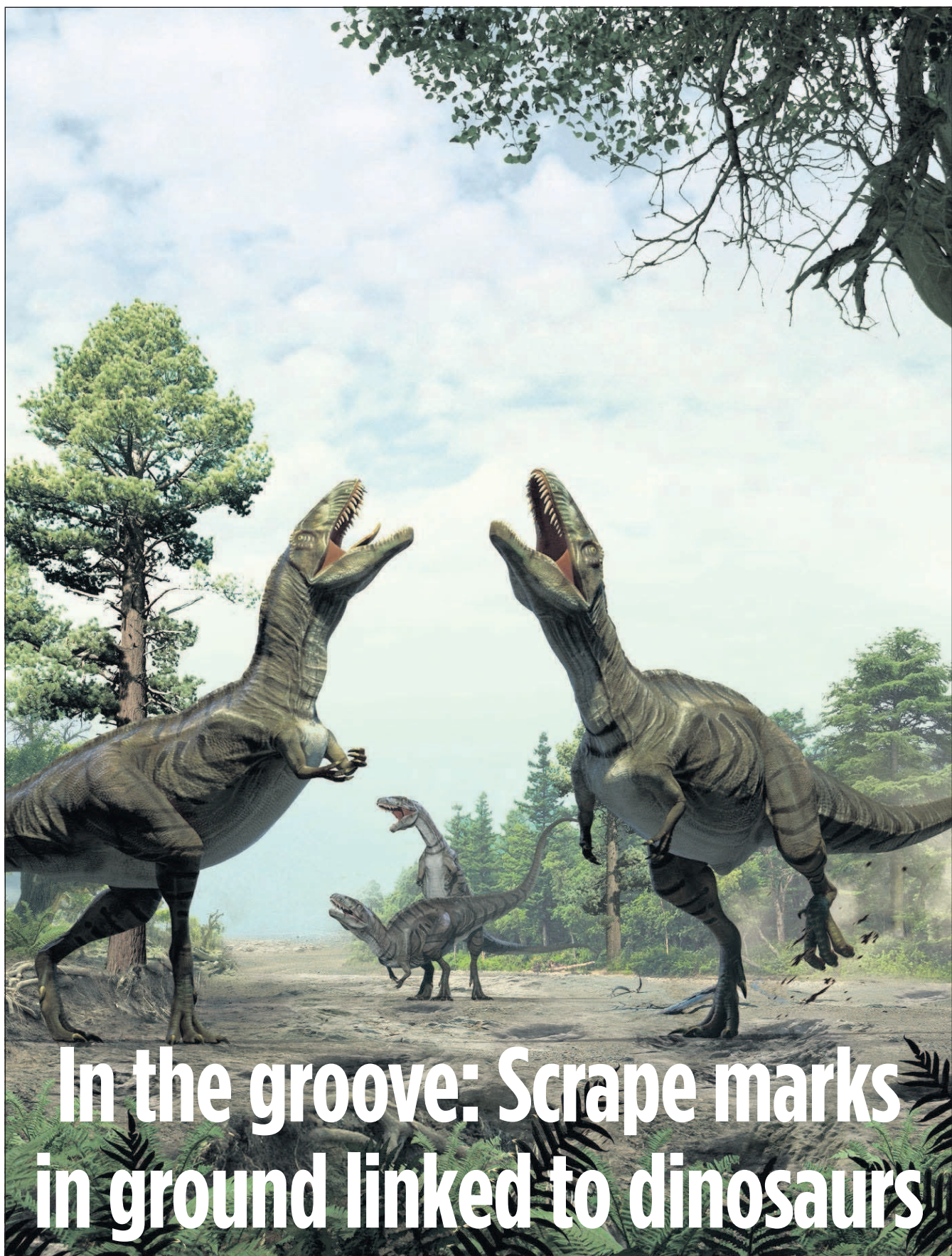
The first step, she said, is to locate more planets in these clusters. So far, only one has been found. The sweet spot would be a habitable zone around a star

where life could flourish, yet dense enough to enhance travel among inhabitants.

Di Stefano presented her theory Wednesday at the American Astronomical Society's annual meeting in Kissimmee, Florida. Her paper stood out among the hundreds of research papers; an AAS official called the results "provocative."

A global cluster can hold a million stars in a compact ball an average 100 light-years across. This overcrowding can result in stars elbowing out other stars' planetary systems. Di Stefano said smaller solar systems would be more apt to last longer; the planets would orbit closer to their home star and therefore be less of a target for encroaching neighbors.

Stars in these clusters are so close, communication and travel would be relatively easy for these any space-farers out there.



In the groove: Scrape marks in ground linked to dinosaurs

Lida Xing/Yujiang Han

This illustration provided by Lida Xing and Yujiang Han shows theropods engaged in scrape ceremony display activity, based on trace fossil evidence from Colorado. The scientists who discovered the long grooves say they were dug by the feet of dinosaurs during a frenzied ritual to attract mates. Such behavior is seen nowadays in some birds, and the discovery suggests that two-legged, meat-eating dinosaurs called theropods did it about 100 million years ago, the researchers said in a report released Thursday.

By MALCOLM RITTER
AP Science Writer

NEW YORK — Scientists say they've discovered evidence of a frenzied mating ritual by dinosaurs: long grooves in the ground etched by the pawing of clawed feet.

Such behavior is seen nowadays in some birds, and the discovery suggests that two-legged, meat-eating dinosaurs called theropods did it about 100 million years ago, the researchers said.

Martin Lockley of the University of Colorado Denver said the dinosaurs, probably males, apparently gathered in groups and "went crazy scraping" with their clawed, three-toed feet to attract mates. The beasts were built roughly like smaller versions of a T. rex. Footprints near the grooves suggest a variety of body lengths, up to about 16 feet from snout to tip of the tail.

The grooves they carved are up to 6 feet long.

The ritual would have been entertaining to watch, Lockley said in an interview. "These animals would have been really frenzied."

Lockley, an emeritus professor of geology, is an author of a paper on the discovery released Thursday by the journal Scientific Reports. The grooves were found at three sites in western Colorado and another just west of Denver.

Dinosaur expert Thomas Holtz Jr. of



Martin Lockley via AP

Dr. Martin Lockley, right, and co-author Ken Cart kneel beside two large Cretaceous-age scrapes from western Colorado that are the first physical-reported evidence that large theropod dinosaurs engaged in courtship behavior.

the University of Maryland, who didn't participate in the work, said it's reasonable to think that theropods created the grooves. But was it for mating?

Holtz said he wasn't convinced that the new paper had sufficiently ruled out other explanations. But he added that there's no particular evidence for rejecting the mating idea.

"Whatever behavior is being recorded here, it is an expression of the fact that dinosaurs — like all animals — did more than hunt and attack and devour and fight and all that limited set of behaviors that popular culture often portrays," Holtz wrote in an email.

Online: Scientific Reports: <http://www.nature.com/srep>

RELIGION BRIEFS

Warrenton United Methodist

The Warrenton United Methodist Church, 679 S. Main, will learn about the baptism of Jesus and conduct a baptism renewal service at 10 a.m. Sunday. The sacrament of Holy Communion will also be offered. Light refreshments will be served immediately after the worship service. The church is accessible for those who are physically challenged. Off-street parking is available. Bible

study is held in Fellowship Hall every Wednesday at 2 p.m. on a drop-in basis and will continue this week with a discussion focusing on the Gospel of St. Luke. For more information, call 971-704-4357.

St. Mary, Star of the Sea

Catholic Daughters annual baby shower is Sunday after the 8:30 a.m. and 10:30 a.m. Masses at St. Mary, Star of the Sea Catholic Church auditori-

um on 15th Street and Grand Avenue. This is a fundraiser to supply newborn layettes to Columbia Memorial Hospital in Astoria and Providence Seaside Hospital. It is for young mothers in need of help with their newborns. Donations at the event can be either in-kind (newborn clothing, diapers, etc.), or financial (cash, check). Breakfast brunch with cake will be served.

Grace Episcopal

The monthly Second Sun-

day Soup-Supper meal will be held at 4 p.m. Sunday in the Parish Hall, free of charge. Setup is at 3 with dinner at 4. Cleanup begins at 5 p.m.

The first Taizé Prayer & Song service of the year will be 7 p.m. Wednesday, Jan. 13. Taizé style worship was created in France by a small ecumenical monastic community during World War II in the spirit of peace. The service consists of simple repeated chants, periods of silence, prayers individual and

communal, and the lighting of candles. Grace conducts this evening prayer service on the second Wednesday of each month. All are welcome.

Grace Church is located at 1545 Franklin Ave. For additional information, call the church at 325-4691 or 325-6580, or visit www.graceastoria.org.

Pacific Unitarian Universalist

The Rev. Kit Ketcham will

deliver a sermon titled "Winter Reflections: Darkness, Light and Human Living," Sunday. Winter can be a time of deep reflection on life's meaning. During the past year, our lives have been both shaken and eased by powers beyond our control. Rev. Kit Ketcham will share some of her thoughts about chaos and grace.

Arlene LaMear is the lay leader and Christine Yeigh is the greeter. The monthly potluck is Sunday.

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