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Top 10 new species for 2016

Date: May 23, 2016
Source: SUNY College of Environmental Science and Forestry

Summary: A hominin in the same genus as humans and an ape nicknamed "Laia" are among the discoveries identified by the SUNY College of Environmental Science and Forestry as the Top 10 New Species for 2016. Also on the list are a giant Galapagos tortoise, a seadragon, an anglerfish, three invertebrates, a carnivorous sundew and a small tree.

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FULL STORY

Chelonoidis donfaustoi: Eastern Santa Cruz Tortoise, Santa Cruz Island, Galapagos

Credit: Washington Tapia

A hominin in the same genus as humans and an ape nicknamed "Laia" that might provide clues to the origin of humans are among the discoveries identified by the SUNY College of Environmental Science and Forestry (ESF) as the Top 10 New Species for 2016.

The list also includes a new kind of giant Galapagos tortoise, which could serve as a poster species for conservation and evolution, and two fish -- a seadragon in stunning shades of ruby red and pink and, conversely, an anglerfish that would not win an undersea beauty pageant.

Rounding out this year's Top 10 are three invertebrates -- a tiny isopod that builds its own mud shelters, a beetle named after a fictional bear who traveled from Peru to London and a damselfly with a suggestive name, and two plants -- a carnivorous sundew that was considered endangered as soon as it was found and a tree that was hiding in plain sight.

Brazil and Gabon each contributed two new additions to the planet's biodiversity. The others hail from Ecuador, South Africa, the Gulf of Mexico, Australia, Spain and Peru.

The list is compiled annually by ESF's International Institute for Species Exploration (IISE). The institute's international committee of taxonomists selects the Top 10 from among the approximately 18,000 new species named during the previous year. The list is made public around May 23 to recognize the birthday of Carolus Linnaeus, an 18th century Swedish botanist who is considered the father of modern taxonomy.

Established in 2008, the list calls attention to discoveries that are made even as species are going extinct faster than they are being identified. "In the past half-century we have come to recognize that species are going extinct at an alarming rate. It is time that we accelerate species exploration, too. Knowledge of what species exist, where they live, and what they do will help mitigate the biodiversity crisis and archive evidence of the life on our planet that does disappear in the wild," said Dr. Quentin Wheeler, ESF president and founding director of the IISE.

Scientists believe 10 million species await discovery, five times the number that are already known to science.

"The rate of description of species is effectively unchanged since before World War II. The result is that species are disappearing at a rate at least equal to that of their discovery. We can only win this race to explore biodiversity if we pick up the pace. In so doing we gather irreplaceable evidence of our origins, discover clues to more efficient and sustainable ways to meet human needs, and arm ourselves with fundamental knowledge essential for wide-scale conservation success," Wheeler said.

The 2016 Top 10 New Species

Giant Tortoise: 185 Years Post-Darwin, a New Species in Galapagos

Chelonoidis donfaustoi

Location: Galapagos, Ecuador

How it made the Top 10: No animals are more immediately associated with evolution or Charles Darwin than the giant tortoises of the Galapagos. Small differences had been noticed between eastern and western populations of giant tortoises on Santa Cruz Island that were assumed to be simply genetic variation within the known species, *C. porteri*. A careful analysis of both genetic and morphological data, however, shows that the smaller eastern population, with perhaps as few as 250 individuals, is a distinct and new species. This discovery has immediate, important conservation implications. *C. porteri* has a more limited geographic range than previously believed, restricted to western and southwestern areas of the island, and care must be taken to avoid bridging the natural isolation of the two species. The new species was named in honor of a park ranger known as "Don Fausto," who worked 43 years to conserve the giant tortoises of Galapagos.

Giant Sundew: Carnivorous Plant Debuts on Social Media

Drosera magnifica

Location: Brazil

How it made the Top 10: This is believed to be the first new species of plant discovered through photographs posted on Facebook. It is also a record-setter, being the largest sundew ever seen in the New World, growing to 123 cm (48 inches). With nearly 200 species, the sundew genus is one of the most species-rich groups of carnivorous plants. Like other sundews, it secretes a thick mucus on the surface of its leaves that entraps unsuspecting insects that are then digested to compensate for the inadequate nutrition available in the soils in which it grows. Although it is new to science, this sundew is considered to be critically endangered. It is a microendemic, known to exist only at the summit of a single mountain in Brazil, 1,550 meters (5,000 feet) above sea level. Although locally abundant, its habitat is isolated, limited and fragile.

Hominin: Family Tree Grows a New Branch

Homo naledi

Location: South Africa

How it made the Top 10: Fossil remains of this previously unknown species of the genus *Homo* represent at least 15 different individuals, the largest collection of remains of a single species of hominin ever discovered on the African continent. Anatomical features of this new hominin found in South Africa are a mixture of those of *Australopithecus* with other *Homo* species, combined with several features not known in any hominin species. Features shared with other *Homo* species include complex functional locomotion, manipulation and mastication systems. Similar in size and weight to a modern human, and with humanlike hands and feet, the new species has a braincase more similar in size to earlier ancestors living two million to four million years ago, as well as shoulders, pelvis, and ribcage more closely resembling earlier hominins than modern humans. The exact age of the remains, once determined, will have implications for the early history of our genus.

Isopod: Working as Architect, Builder

Iuiuniscus iuiuensis

Location: Brazil

How it made the Top 10: This might be the 15 minutes of fame that isopods (crustaceans that live in water or on land; think "pillbug") have been waiting for. This blind, unpigmented, multilegged animal represents a new subfamily, genus, and species of amphibious isopod discovered in a South American cave. It has a behavior never seen before in its family: It constructs shelters of mud. The cave where the species was discovered has its only entrance at the bottom of a sinkhole and its inner chambers are flooded during the rainy season. Eight other caves in the region were explored, but the new species was found in only one. This isopod, just over 9 mm (a third of an inch) in length, builds spherical, irregularly shaped shelters in which it molts. While shedding its exoskeleton, it is especially vulnerable to predators. Some Palearctic isopods are known to build shelters, but this is a first for the New World. The new species is unique among its Brazilian cave-inhabiting relatives in having tapering plates at the base of its legs that give it a spiny appearance.

Anglerfish: Angling for Ugliest

Lasiognathus dinema

Location: Gulf of Mexico

How it made the Top 10: If this fish from the Gulf of Mexico, barely 50 mm (about two inches) long, were angling for ugliest among the Top 10 New Species, it might succeed. It was discovered during a Natural Resource Damage Assessment process conducted by the National Oceanic and Atmospheric Administration after the Deepwater Horizon oil spill in 2010. Different species of anglerfish can be distinguished visually only by details of the unusual structure called the esca that is projected over their heads like -- ironically -- a fishing pole. This organ is located at the tip of a highly modified, elongated dorsal ray. Rays are the spines that add support to the dorsal fin. The esca in some anglerfish is home to symbiotic bacteria that are bioluminescent, producing light that is a rare commodity in the depths of the ocean and is presumed to attract prey. Either way, these are among the most unusual features of any fish in form and function.

Seadragon: Ruby Red with Pink Stripes

Phyllopteryx dewysea

Location: Australia

How it made the Top 10: Seadragons are related to seahorses and are a unique combination of beautiful and bizarre. This new kind of marine fish, 240 mm (nearly 10 inches) in length, is a striking shade of ruby red with pink vertical bars and light markings on its snout. Only the third known species of seadragon, it is found in slightly deeper and more offshore waters than the related common or leafy seadragons. The discovery was made off the coast of Western Australia. Aside from its spectacular appearance, it is a reminder of what we have yet to discover about marine species diversity. If ruby red dragons nearly a foot long in shallow waters have escaped our attention, what else do we not yet know?

Tiny Beetle: Please Look After This Species

Phytotelmatrichis osopaddington

Location: Peru

How it made the Top 10: This species owes its charming Latin name to Paddington Bear, a lovable character who became a classic in children's literature after he was introduced in 1958. As the story goes, he showed up one day in Paddington Station, London, with a sign that said, "Please look after this bear." Like him, the new beetle hails from Peru. The researchers hope the new species' name will draw attention to the threatened Andean spectacled bear that inspired the Paddington books. Nearly 25 of these tiny beetles could line up, head to tail, before they reached the one-inch mark on a yardstick. They have a peculiar way of life. A little-studied world of animals, from insects to frogs, make their homes in pools of water that accumulate in hollows of plants, such as tree holes and the leaf bases of bromeliads (tropical and subtropical plants with short stems and stiff, open spiny leaves); these water bodies are called phytotelmata. This species was discovered in such water, gathered in leaf rolls of a non-native, cultivated plant, sparking questions about its food, breeding and native hosts. This is a featherwing beetle, the family that includes the smallest known group of beetles and which is named for the distinctive shape of their wings. Most of them are found on the forest floor where they feed on decomposing materials. So far, the plants documented as hosts to the new species belong to the Zingiberales, an order of flowering plants that include ginger and banana among 2,000 others.

New Primate: Small Ape with Big Implications

Pliobates cataloniae

Location: Spain

How it made the Top 10: This ape, nicknamed "Laia" by her discoverers, was a small female that lived about 11.6 million years ago in what is now Spain, climbing trees and eating fruit. Fragments of her remains were discovered in a landfill in Catalonia, and she has challenged a lot of assumptions about the origins of, and relations among, living apes, gibbons and humans. It appears she was 4 to 5 kg (roughly 9 to 11 pounds) in weight, suggesting a diminutive height of about 43 cm (17 inches). She lived before the lineage containing humans and great apes had diverged from its sister branch, the gibbons, and she appears to be sister to the three combined. Her discovery suggests greater morphological diversity existed at that time, in the Miocene, than previously thought, and raises the possibility that early humans could have been more closely related to gibbons than the great apes. Her name is a popular Catalan diminutive of the name "Eulàlia," the original patron saint of the city of Barcelona.

Flowering Tree: All the Buzz

Sirdavidia solannona

Location: Gabon

How it made the Top 10: This new tree species was "hidden" just meters from the main road in the Monts de Cristal National Park, in Gabon, which was thought to have already been well explored by science. Its small size, less than 6 meters (20 feet) high with a diameter of 10 cm (about four inches) might have caused it to be overlooked during inventories that focus on larger trees. It is so different from related members of the Annonaceae family of flowering plants, based on both morphology and molecular data, that it was described as a new genus, too. Its closest relative is also a genus with a single species, *Mwasumbia*, found on the other side of the African continent in Tanzania some 3,000 km (1,865 miles) away. Interestingly, the new species' flowers resemble those of certain *Solanum*, the genus of the nightshade family that includes potatoes and tomatoes, that are associated with the "buzz" pollination syndrome. In this syndrome, flowers have reflexed petals exposing the stamens and pistils that bees "sonicate" by creating vibrations of the air with their wings to extract and spread pollen. If buzz pollination is confirmed, it would be the first example in this family or any other early-diverged flowering plant, and an unexpected example of convergent reproductive evolution.

Sparklewing: Damselfly with a Daring Name

Umma gumma

Location: Gabon

How it made the Top Ten: This new damselfly is just one of a staggering number of newly discovered dragonflies and damselflies from Africa. Sixty new species were reported in a single publication this year, the most for any single paper in more than a century and a surprising leap forward in knowledge for one of the better-known insect orders. Most of the new species are colorful and so distinct they are identifiable from photographs alone, emphasizing that not all unknown species are small, indistinct or cryptic in appearance or habits. Given that the genus name is *Umma*, it was quick work to give this lovely and delicate damselfly a name that might be familiar to rock-and-roll fans: the band Pink Floyd named its 1969 double album Ummagumma (which has yet another meaning as a British slang term for sex).

Story Source:

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