PRESS RELEASE

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Woodland Park Zoo to use drone technology, GPS and machine learning to help save endangered tree kangaroos

National Geographic Society grant will support ongoing field research

SEATTLE—In the Pacific Northwest, it isn't just the giant technology companies and pioneering start-ups that are driving the region's innovative technology sector. One of Seattle's oldest and most beloved cultural institutions, Woodland Park Zoo, will be combining an array of cutting-edge technology—artificial intelligence, machine learning, 3-D mapping with drones, and technologically advanced tracking collars—to better understand and protect the endangered Matschie's tree kangaroo.

Through a $50,000 grant from the National Geographic Society, Woodland Park Zoo's Tree Kangaroo Conservation Program (TKCP) will use these technologies to advance conservation in Papua New Guinea. TKCP was created in 1996 by Woodland Park Zoo Senior Conservation Scientist and TKCP Director Lisa Dabek, PhD, to protect Papua New Guinea's rain forests. These forests are one of the most biodiverse regions in the world, containing the Matschie's tree kangaroo, birds of paradise, and other unique and indigenous wildlife. The program is also helping the people who share these forests by supporting local community livelihoods, including an innovative coffee partnership with Seattle's Caffe Vita.

Finding ways to locate, track, and protect the rare Matschie's tree kangaroo in the remote mountain forests of Papua New Guinea is challenging given the isolation, lack of roads, steep forested terrain and the cryptic nature of this arboreal creature.

"As with many rare and endangered species, our current ability to understand populations and develop predictions is severely limited by the lack of available data. This new grant will allow our Tree Kangaroo Conservation Program research team to use advanced technology in one of the most intact, biodiverse forests on the planet," said Dr. Dabek.

The TKCP is partnering with local-based engineer Doug Bonham and University of Montana graduate student Jonathan Byers to develop a suite of tools and methods of drone 3-D imagery, GPS collars, and machine learning to better understand tree kangaroo behavior, its ecological needs and its distribution. The new collars are equipped with GPS devices, which automatically convey the animal's location via satellite through the thick forest canopy. Additionally, the new collars have sensitive altitudinal and motion sensors that provide movement data throughout the tree kangaroo's complex three-dimensional environment.

"As a result of this new technology, we can record a tree kangaroo's location and movement much more frequently, accurately and without human disturbance to the animal," said Dabek. "After nearly 30 years of research, this is the tip of the iceberg with understanding the elusive tree kangaroo. Our new research has potential to serve as a global role model for species research worldwide."

The local communities in Papua New Guinea will also benefit from the new conservation technology. In 2009, the TKCP worked with indigenous landowners and the government to establish Papua New Guinea's first and only nationally recognized Conservation Area. The indigenous clans own 90% of the land, putting them in control of its preservation and stewardship. These landowners pledged 187,000 acres of pristine rain forest habitat for the protection of tree kangaroos and other endemic species of Papua New Guinea's Huon Peninsula.

“The new technology aided by this grant will provide critical data for the local communities to guide their land management decisions and conserve the resources they directly depend on,” said Dabek.

Dabek will head to Papua New Guinea this October to join the TKCP research team to put collars on tree kangaroos using the new technology to collect important data. The research team will include TKCP field scientist Nicholas Wari, research manager Daniel Okena and co-project leader Jonathan Byers.

Matschie’s tree kangaroos are native to the Huon Peninsula of Papua New Guinea where they live in mountainous rain forests at elevations of up to 11,000 feet and spend most of their time in trees. The mahogany-furred animals can reach a height of 37 to 70 inches and weigh 15 to 25 pounds. Matschie’s tree kangaroos are an endangered species due to habitat destruction and hunting.

Visit https://www.zoo.org/tkcp for information about the Tree Kangaroo Conservation Program.

The National Geographic Society gives grants to support bold people and transformative ideas in the fields of exploration, scientific research, storytelling and education. Since its founding in 1888, the National Geographic Society has provided more than 13,000 grants to scientists and explorers in the field. Visit nationalgeographic.org/grants to learn more and apply.

Founded in 1899, Woodland Park Zoo is accredited by the Association of Zoos & Aquariums and certified by the rigorous American Humane Conservation program. The Humane Certified™ seal of approval is another important validation of the zoo’s long-standing tradition of meeting the highest standards in animal welfare. Woodland Park Zoo is helping to save animals and their habitats through more than 30 field projects in the Pacific Northwest and around the world. Each year, the zoo engages more than a million visitors of all ages, backgrounds, abilities, and walks of life in extraordinary experiences with animals, inspiring them to make conservation a priority in their lives and a difference in our planet’s future ecological health and sustainability. Visit www.zoo.org and follow the zoo on Facebook, Twitter and Instagram.

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