



Understanding animals' health conditions and enclosure environments in order to improve their quality of life

Using a thermal imaging camera to record video of animals Uploading videos to Facebook and YouTube

The Omuta City Zoo takes pride in being "a zoo that tells you animal welfare", with a focus on caring for the animals' mental and physical health as well as ensuring they live in harmony in their environment. The zoo undertakes a diverse range of daily activities to help the animals achieve good health while also encouraging zoo visitors to think about animal welfare.

As part of this welfare program, the zoo recently introduced a thermal imaging camera from FLIR Systems so keepers can gain a better understanding of the animals' the daily health conditions and environments.

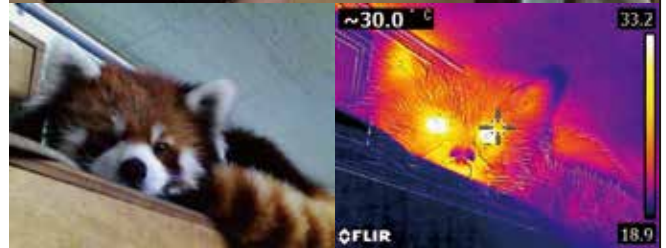
Purchasing a camera through donations to support the zoo

"In recent years, the introduction of thermal imaging cameras has become a trend among zoos," says Dr. Kanako Tomisawa, spokesperson for the Omuta City Zoo. Originally, the Omuta City Zoo intended its thermal imaging cameras for livestock treatments.

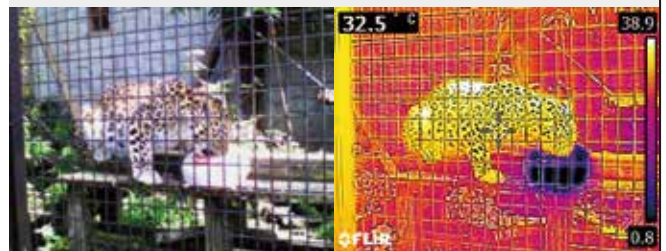
Dr. Tomisawa says, "For example, suppose an animal was dragging its feet. We could not determine what condition it was in unless it was bleeding or injured. Thermal imaging cameras allow us to learn about the extent of any inflammation of affected parts by measuring temperature." She adds, "We also have some animals whose body temperatures cannot directly measure at the zoo. The ground tends to become very cold in winter, and we traditionally could not judge if their body temperatures were maintained down to their toes."

Once they understood what the thermal camera could do, the zoo decided to also use it to evaluate how the animals reacted to their enclosures and oversee their physical and mental health. Based on what they learned, the zoo could make improvements to the environments and animal health maintenance activities, thereby enhancing their quality of life.

Because the city did not have much leeway in its budget, the zoo decided to purchase a camera through fundraising. Zoo officials has set a donation box at the main gate, and they used the money to purchase a camera this time, which achieved great support from the community. Following a consultation with FLIR Systems, the zoo introduced a FLIR E6-XT camera in August and started operations.



Images of a Red panda
(Left: visual scene, right: thermal imagery)



Images of an Amur leopard
(Left: visual scene, right: thermal imagery)



Images of a Eastern grey kangaroo
(Left: visual scene, right: thermal imagery)



Images of Guinea pigs
(Left: visual scene, right: thermal imagery)



New discoveries from a fixed point of observations

Currently, the zoo has two Giraffes. A male Giraffes sometimes dragged its feet during the winter yet did not seem to have any inflammation or swelling on its feet. Dr. Tomisawa recalls, "Believing that his body temperature of the feet might have dropped due to a lowered ambient temperature, we modified a pair of shipping boots for horses, applied them to the Giraffe in question and found that he didn't drag his feet anymore. We thus concluded that the lowered ambient temperature affected his body temperature and now use the thermal imaging camera to check the body temperatures of him."

She adds, "By using the thermal imaging camera to regularly check temperatures from summer to winter, we aim to identify any causes to specific issues."

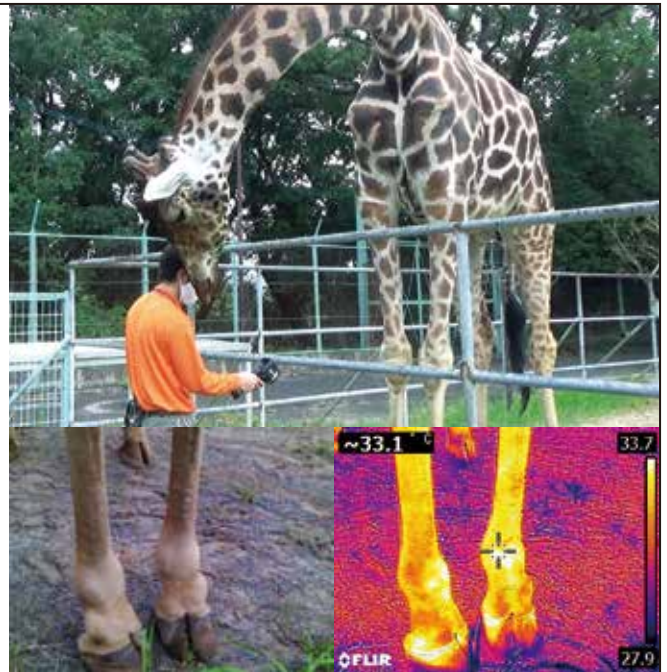
In response to requests from visitors, the zoo uploads the videos of Kuri-chan, which is a Linnaeus's Two-toed Sloth, to YouTube. Dr. Tomisawa says, "Much of the ecology in Sloths is unknown, so by taking advantage of the thermal imaging camera, we anticipate that we can make many new discoveries."

Easy transfer to the computer with the Wi-Fi function

While applying the thermal imaging camera to a wide range of research on animals, as in the case of Sloths, the zoo is also promoting its use in the daily health management of the animals. By accumulating such management data, the zoo can understand the normal conditions of individual animals. If any abnormal happens, the zoo can promptly find the source of the issue and prevent from animals got sick. This, in turn, will result in further helpful research on the animals. Dr. Tomisawa says, "As an application of the thermal imaging camera, we want to turn our attention to the surroundings of the animals such as the temperatures of the ground and the fences of the enclosures, in addition to the animals themselves. Even if there is space that allows the animals to take a rest, is it really a comfortable place for them? Are there any changes depending on the season? By checking such things, we can have a better understanding and make improvements to the rearing environment of animals."

One of the advantages of the FLIR E6-XT is that it offers MSX® image enhancement, in which details from a visual camera image are added to the thermal image to improve definition and perspective. This technology helps the viewer immediately understand the conditions in which the image was taken. The E6-XT also records thermal video and offers Wi-Fi communication, making it easy to transfer photos and videos to a computer.

"Videos certainly attract a high level of attention," Dr. Tomisawa says in describing their expectations for a wider range of applications from the thermal imaging camera, and "We very much hope that going forward, many more facilities such as zoos or aquariums can promote not only the improvement of animal health and their environments but also a better understanding of animal welfare that we are focusing on."



Images of Giraffe's feet
(Left: visual scene, right: thermal imagery)



About Omuta City Zoo

The municipal zoo, located in Omuta City, Fukuoka Prefecture, Japan was established in 1941. Under the concept of "a zoo that tells you animal welfare," it conducted environmental enrichment with the goal of improving the living conditions of animals so that they can have a better life both physically and mentally, as well as husbandry training which we can cooperate with animals and work together on their physical and mental health care needs. Thus, the Omuta City Zoo has implemented a wide range of initiatives to improve animal welfare.

For more information, please visit:
www.flir.com

SANTA BARBARA
FLIR Systems, Inc.
6769 Hollister Avenue
Goleta, California 93117
Phone: +1 941.726.8121

PORTLAND
Corporate Headquarters
27700 SW Parkway, Ave.
Wilsonville, Oregon, 97007
Phone: +1 866.477.3687

Equipment described herein may require US Government authorization for export purposes. Diversion contrary to US law is prohibited. Imagery for illustration purposes only. Specifications are subject to change without notice. ©2020 FLIR Systems, Inc. All rights reserved. (10/20)

