

# Impregnating tigers: It's all in the technique

NOWADAYS, the action in any animal breeding programme takes place in a laboratory, with essential tools ranging from the ultrasound machine to the electron microscope.

It's no different for the Wildlife and National Parks Department's (Perhilitan) breeding and rewilding programme for Malayan tigers.

At the National Wildlife Rescue Centre (NWRC) in Sungkai, Perak, veterinarian Dr Zubaidah Kamarudin and her team are always on call for any programme involving assisted reproductive technology (ART) for the tigers.

"At the moment, we are still building up the capacity of our team, such as gathering data and developing the skills and techniques required for successful artificial insemination.

"In 2021, we carried out three programmes involving the sedation of tigers due to movement restrictions caused by the Covid-19 SOP.

"We also performed procedures such as hormone checks and hormone treatments," she says, adding that the seven-member team is based in both NWRC and Perhilitan's HQ in Kuala Lumpur.



Dr Zubaidah demonstrating the use of the ultrasound machine in the lab. (Right) A sample of the semen collected from a tiger at the centre.

Dr Zubaidah says this year, the team managed to successfully collect semen from the male tigers at the centre.

The semen is then evaluated for

the movement and the percentage of living spermatozoa or any abnormality through the microscope.

"But the quantity of semen collected is still too little. When this



happens, the chance for us to also artificially inseminate the female is low.

"That's one of the processes we are trying to build up for – in terms

of collection techniques or to see if there is any factor at play, such as age, in producing enough quantity of semen," she says during a recent interview at her office.

"At present, there is still much data we don't have about why this happens," she adds.

Her office at the NWRC is filled with the latest medical equipment – from tubes and forceps to centrifuges, test tubes, synthetic hormones, catheters, microscopes and an ultrasound machine.

Nearby, a shiny steel operating table, much like those in operating theatres for humans in hospitals, is ready to receive the next four-footed patient.

Dr Zubaidah says the semen collected by the team can either be artificially inseminated into female tigers or cryogenically stored in liquid nitrogen at very low temperatures and used later.

"But when we thaw the semen, we find that the quality is very low.

Why does this happen?

"Maybe the media we used isn't suitable. There are many factors that we have to look into," she points out.

Dr Zubaidah expects that it will take another two or three years to develop the team's capacity and techniques internally.

"That's why we have networking with other experts and we try to apply the techniques developed overseas here," she says.

The team works with Dr Abraham Mathew from the Mandai Wildlife Group (formerly Wildlife Reserves Singapore) as well as Breeding Our Rare Animals (Bora).

Formerly known as the Borneo Rhino Alliance, Bora was involved in attempts to breed the now extinct in Malaysia's wilderness Sumatran rhino using expertise from Germany while Dr Mathew is involved in artificial insemination for various animals at the Singapore Zoo, including other large cats.

The Singapore Zoo welcomed its first lion cub conceived through assisted reproduction on Oct 23,

2021; it's appropriately named Simba like the main protagonist in Disney's *Lion King*.

According to Dr Zubaidah, Dr Mathew has shared with her team via webinars the techniques developed at the Singapore Zoo's artificial insemination programme.

"However, the difference is that this was performed on lions. So there is a difference in size between the two animals which affects things like the distance we have to insert the catheter.

"This is our main focus now," she says.

Even then, cautions Dr Zubaidah, it can take veterinarian teams up to five years to develop consistently successful techniques for artificial reproduction. One of the world's most successful captive breeding programmes, the Giant pandas in China, started in 1953 but only took off in the 2000s, increasing births from only six at the Chengdu Research Base in the 1980s to 206 by the end of 2019.

Hopefully, good things will also come to everyone in Malaysia waiting anxiously for tiger cubs.