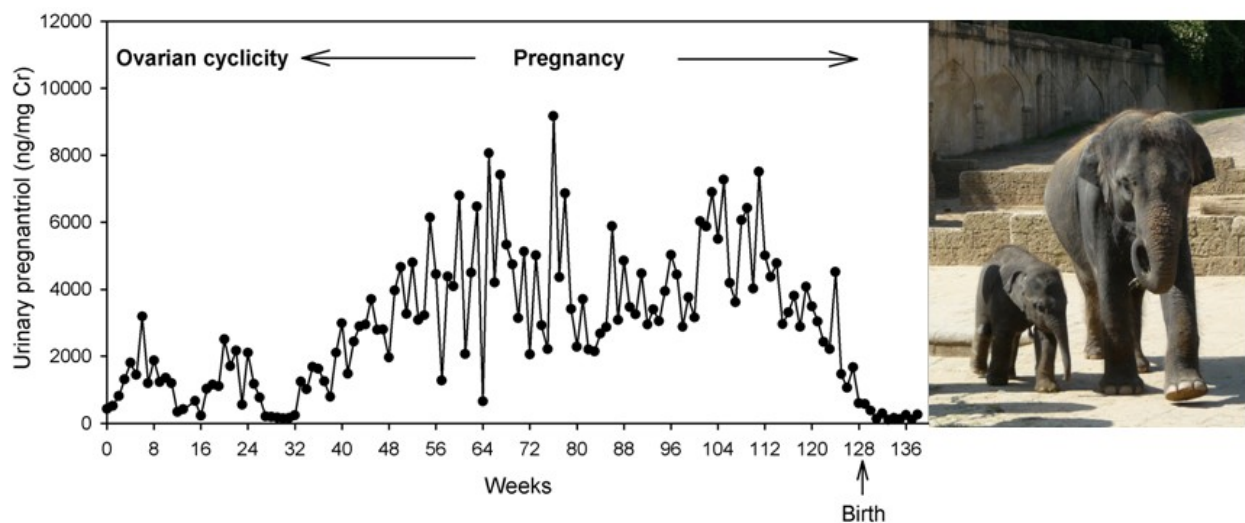


Endocrine monitoring of ovarian activity and pregnancy in elephants



The German Primate Center (DPZ) offers an endocrine diagnostic service to help zoos monitoring the reproduction of their elephant cows. In particular, for almost 20 years we have now supported the breeding management of the populations of Asian and African elephants within the European Endangered Species Programme (EEP) by weekly hormone analyses from urine. In the previous years, more than 40 elephant keeping institutions have used this service and so far we have provided hormonal data on female reproductive status for a total of more than 300 females of both species. Currently, we monitor more than 80 animals in 24 zoos all over Europe.



Profile of the urinary progesterone metabolite pregnanetriol in a female Asian elephant demonstrating two ovarian cycles followed by a successful pregnancy

IF YOU ARE INTERESTED TO MAKE USE OF OUR SERVICE, YOU WILL FIND BELOW ALL NECESSARY INFORMATION ABOUT SAMPLE COLLECTION, STORAGE OF SAMPLES AND THEIR TRANSPORT TO US AS WELL AS OUR CONTACT DETAILS.

I. How often and how much urine needs to be collected?

- For monitoring ovarian function (i.e. assess whether the female is showing regular ovarian cycles or not) and diagnose pregnancy, the collection of **one sample per week** is sufficient. However, in order to be able to diagnose reproductive status reliably and to generate a hormone profile, urine should be collected for minimum 6 months, i.e. throughout a full ovarian cycle.
- If possible, samples should be collected on the **same weekday** each week.
- Urine can be either collected **directly from the urinating cow or taken from the ground** with a clean syringe or pipette. If the urine is collected from the ground, make sure that it is **not contaminated with faeces**. It is also important that the ground is dry since an unknown amount of water in the sample may result in over-dilution potentially rendering the hormone value unreliable. (rule of thumb: **the more yellow the sample looks, the better!**).
- A volume of **1 ml urine** is sufficient for hormone analysis.
- The urine should be collected in **non-breakable plastic tubes that close well**. We can provide suitable tubes upon request.
- The **tubes should not be filled to the top** since this may lead to be forced out of the tubes in case samples are frozen. As a consequence, the urine will come off the tube in case samples thaw during transport.

II. How should samples be stored and send?

- Before freezing or sending samples to our laboratory, each sample tube has to be **labelled with animal ID and date of urine collection**. For this, you can either use a **waterproof pen or simple freeze-resistant sticky label** (available in super market).
- Urine samples can be **send either fresh or frozen** depending upon how long the transport to our lab takes (see below) and whether you want/need to have the hormone results promptly or not.
- If you can ensure that freshly collected samples will **arrive at our lab within two days of collection, freezing them is not necessary**. Since **hormone measurements for Asian elephants are performed every Wednesday**, urine should be collected on Sunday, Monday or Tuesday and posted straight away to us. Hormone data and their interpretation are faxed within two days of analysis. **Hormone measurements in African elephant samples are performed** more irregularly **depending on availability of samples**. As for Asian elephants, hormone results will also be communicated within two days of analysis.
- **If transport of the samples takes longer than two days, the samples need to be shipped frozen**. If possible, use a **Styrofoam box** and place some **cool packs inside** to keep samples frozen/cool during

transport. Samples will be analysed within a few days and results communicated within two days upon analysis.

- **If urine samples are sent less frequently** (i.e. every month or so), **they have to be frozen** after collection. Frozen samples should then be posted together with the latest collected fresh sample to arrive at our lab. If you can ensure that the transport takes no longer than two days, samples do not need to be cooled during shipment. If the transport takes longer, please use a **Styrofoam box** and place some **cool packs or dry ice inside**.

IMPORTANT INFORMATION FOR SHIPMENTS FROM NON-EU COUNTRIES (e.g. UK):

The import of biological samples from third party countries, i.e. non-EU member states, into Germany is **subject to import restrictions**. This means that **before any biological samples can be shipped to our laboratory, the DPZ has to apply for an official import permit** (animal health approval) at the responsible German ministry. **Samples can only be shipped by the zoo, once the import permit is issued and the specific regulations listed in the permit are followed.**

The import of biological samples under these conditions is also subject to veterinary checks at the first point of entry into the EU by the border inspection post to protect against the introduction and spread of animal diseases. **The process of applying for and issuing the import permit usually takes 3-4 weeks, so that you need to plan your shipment way ahead.** Of course all this is associated with extra costs for every shipment which will be charged by us.

Thus, before you plan any shipments of biological material from non-EU member states to our lab, please contact us (see contact details below) way ahead, so that all necessary administrative work etc. can be discussed and started.

Samples should be finally send to:

Andrea Heistermann
Deutsches Primatenzentrum GmbH
Hormonlabor
Kellnerweg 4
37077 Göttingen

If you have any questions please contact:

Dr. Ann-Kathrin Oerke
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or

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