Reproductive Health Surveillance Program 2022 Report

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Tiger (*Panthera tigris*) Photo A. Moresco

IMPROVED SUSTAINABILITY THROUGH PATHOLOGY

ARCHIVE EST. 1992

2022 The year of the Tiger

After celebrating 30 years since the inception of the **Reproductive Health Surveillance Program** (RHSP) in 2021, we now turn to what the next 30 years will bring. This was an amazing year of new relationships for the RHSP. Active projects included primates (LOTS of them!), felids, and canids.

As relationships are developed and grown, more comparative and in-depth research is feasible to continue to provide the best care possible for the animals under the stewardship of zoos. We continue our work with the **African Painted Dog SSP** and the **Reproductive Management Center** (RMC), evaluating risk factors for the increased risk of pyometra and other endometrial disease in this species.

We are thankful for continued financial support from AZA, RMC, MSU. We are also thankful for grants awarded by ACE Center, NCSU, and the Orangutan SSP.

Do contraceptives affect small and large felids differently?

The RHSP is a partner of the Exotic Species Cancer Research Alliance (ESCRA), and together we will analyze the prevalence of cancer in felids. In a previous publication, an increased risk of neoplasia was documented in large (*Panthera*) felids compared to small (*non-Panthera*) felids. Following this publication, questions arose about whether contraceptives might differentially affect large vs small felids and whether contraceptives could affect non-reproductive organs. The RHSP archive will contribute valuable data to this project.

IN THIS ISSUE

African Painted Dog (*Lycaon pictus*). Photo A Moresco

Oncilla (*Leopardus tigrinus*). Non-*panthera* felids are less susceptible to cancer compared to Panthera felids. Photo: A. Moresco.

Comparative Reproduction: Cancer in Apes

Last year we announced the collaboration between the Reproductive Health Surveillance Program (RHSP) and the Arizona Cancer Evolution (ACE) Center to tackle comparative primate reproductive oncology. Gibbons and siamangs tend to not be included when discussing apes as the focus is on great apes, and of course they are not monkeys either. So far, the project includes 95 gorillas, chimpanzees, orangutans, bonobos, siamangs, and gibbons. Siamangs and gibbons, sometimes called *lesser apes*, are frequently overlooked, and a lot less is known about them compared to the *great apes.* This project contributed to filling that gap in knowledge.

Clockwise: Lar Gibbon, Western Lowland Gorilla, Sumatran orangutan, Chimpanzee. Photos: A Moresco

We are excited to share that we have reviewed the orangutan (*Pongo spp)* and the western lowland gorilla (*Gorilla gorilla gorilla*) cases, resulting in presentations at two national conferences (see publications section), and the lesser ape samples have been evaluated as well.

Hypothyroidism in Orangutans

A major strength of the RHSP is the archive, but we are interested in all things reproduction, including endocrinology. We are currently collaborating with Dr. Melissa Fayette from the Indianapolis Zoo, who is investigating **hypothyroidism in orangutans**. There are orangutans with clinical signs suggestive of hypothyroidism. Additionally, low thyroid hormone levels can affect reproduction and there is currently not a validated thyroid panel for orangutans, therefore true normal are also not available. The Orangutan SSP provided financial support in the form of a grant to develop both a validated panel and normal ranges. We are working with Michigan State University Endocrinology Laboratory to offer testing. If you have cases that would benefit from a thyroid panel, contact Dr. Melissa Fayette mfayette@indyzoo.com.

Orangutan baby with congenital hypothyroidism. Photo: M. Fayette

RHSP is Working with AZA's Species Survival Plans

We are currently working with the meerkat SSP to document reproductive issues, as we did for the binturong. **Are you part of an SSP?** Does your species have sustainability issues or is it lacking reproductive baseline data? The RHSP archive may have information you can use.

Training the Next Generation

This year was exciting in the area of training. There were four summer students: Miguel Catala (reproductive pathology of *Hylobatidae*), Kylee Lindsey (reproductive pathology of servals), Alana Gierbolini (reproductive pathology of red pandas) and Giuseppe Cavaliere (uterine lumen size in gazelles).

2022 selected publications

Publications in green indicate trainee projects

Abegglen et al. 2022. Of elephants and other mammals: a comparative review of reproductive tumors and potential impact on conservation. https://doi.org/10.3390/ani12152005

Agnew DW et al. 2022. Reproductive pathology in female orangutans (*Pongo spp*.) under managed care. Proc Am. Assoc. Zoo Vet.

Kahn B, et al. 2022. Granulosa cell proliferation in the orangutan ovary. ACVP

Catala M et al . 2022. Contraception use and its effects on the reproductive health of captive Lesser Apes (*Hylobates spp*.). Proc. National Veterinary Summer Scholar Program.

Cavaliere G et al. 2022. Uterine lumen size as a function of the phase of estrous cycle, hormonal treatment, and disease in gazelles (*Gazella, Eudorcas,* and *Nanger* spp.). Proc. National Veterinary Summer Scholar Program.

Gierbolini-Torres A et al. 2022. Morphological assessment of uterine disease in red pandas. Proc. National Veterinary Summer Scholar Program.

Lindsey K et al. 2022. Effect of age and contraceptive type on female reproductive tracts of servals. Proc. National Veterinary Summer Scholar Program.

McDonald M et al. 2022. Investigation of factors associated with reproductive disease in African Painted Dogs (*Lycaon pictus*) at AZA institutions. AZA annual meeting

Moresco A et al. 2023. Reproductive tract neoplasia in female western lowland gorillas (*Gorilla gorilla gorilla*) under managed care. Am J Primatol. 2023;85:e23465.

The remaining RHSP 2022 publications can be found here.

Clockwise: Miguel Catala, Kylee Lindsey, Alana Gierbolini and Giuseppe Cavaliere.