

## **Semen characteristics of Bornean sun bear (*Helarctos malayanus euryspilus*)**

### **ABSTRACT**

The Bornean sun bear (*Helarctos malayanus euryspilus*), endemic to Borneo Island, is the subspecies of the Malayan sun bear. The species is at risk, not just because of anthropogenic threats, but also slow reproduction in the wild. In captivity, due to poor reproductive performance, assisted reproductive technology is deemed a fundamental tool to propagate the depleting numbers of the Bornean sun bear. This is a pioneer study that presents the semen characteristics of the Bornean sun bear via conventional semen evaluation methods. Forty-two semen samples from ten sun bears were collected via electroejaculation and evaluated. The electro ejaculator probe (2.5 cm in diameter and 7.0 cm in length) was inserted rectally and positioned dorsal to the prostate gland. The optimum voltage used to obtain semen differed with each individual, but all showed hindlegs contraction and penile erection before ejaculation. The average combined testes volume in the Bornean sun bear was  $23.37 \pm 5.09 \text{ cm}^3$ . The mean semen volume was 617.30  $\mu\text{L}$ , with sperm concentration of  $1034.40 \times 10^6 \text{ sperm/mL}$  and pH 7.79. Sperm viability was 80.19% with a general motility of 79.13% and progressive movement of 70.20%. There were high sperm abnormalities at 70.67%. Sun bear sperm length was  $61.28 \pm 2.46 \mu\text{m}$  and consisted of an oval head, midpiece, and tail. From this study, good semen donors were identified from the captive Bornean sun bear population in Sabah, Malaysia. The fresh semen baseline data established in this study will provide crucial reference for assisted reproduction programs in the Bornean sun bear.