

DEVELOPMENT OF A BODY CONDITION SCORE CHART FOR RED PANDAS (*AILURUS FULGENS*)

Hannah E. Shinnerl, BS^{1,2*}, Andrea Fidgett, PhD¹, Jennifer L. D'Amato-Anderson, MS³, and Jordyn Ellorin, MS¹

¹Wildlife Nutrition, San Diego Zoo Wildlife Alliance, San Diego, CA 92112, USA.

²Department of Nutrition Science, Smithsonian's National Zoo and Conservation Biology Institute, 3001 Connecticut Ave NW, Washington, DC 20008, USA.

³Oregon Zoo, 4001 SW Canyon Rd, Portland, OR 97221, USA.

Abstract

Body condition indices are commonly used in wildlife biology and zoo management to estimate energy stores, usually fat stores. The practice of body condition scoring (BCS) is a valuable tool for zoo professionals to assess their animals' condition and make veterinary, husbandry, and nutritional management decisions. However, with the large variety of species housed at zoological institutions, and no universal BCS method, species-specific BCS charts are needed to accurately determine an individual's condition as fat deposition and muscle structures differ across taxa. Red pandas (*Ailurus fulgens*) are listed as an IUCN endangered species, and, due to their thick pelage, visual assessment is difficult to determine fat stores. Currently, methods to assess red pandas consist of a series of measurements and calculations that, when compared to a trendline of historic data, can provide an ideal weight for an individual (AZA, 2012). While these measurements are useful to track changes over time, they do not provide a body condition score that can be used to make nutritional management decisions. Since red pandas are prone to obesity in human care, which is correlated with lack of reproductive success, having a tool to accurately determine fat stores is important for managing *ex situ* populations (AZA, 2012).

The San Diego Zoo (SDZ) houses five (4.1) adult red pandas. Utilizing positive reinforcement, wildlife care staff were able to train individuals to accept palpation by nutrition staff without restraint or anesthesia. To develop scale descriptions, red pandas at the SDZ were observed and palpated by nutrition staff to determine typical fat deposits in healthy, slightly underconditioned, and slightly to moderately over-conditioned animals. From these observations, a 9-point scale was developed based on fat cover in the forequarters, along the ribs and spine, in the abdomen, and in the hindquarters. Scores from 1 to 3 indicate an underconditioned animal, scores from 4 to 6 are considered ideal body condition and scores from 7 to 9 indicate an over-conditioned animal. Since no animals fell within the outermost ranges of the chart, these descriptions were extrapolated following the trends of fat gain and loss between the observed scores (4 to 7). To validate, wildlife care, veterinary, and nutrition staff have used the chart to assess red panda body condition, both voluntarily and while individuals were under anesthesia for veterinary procedures. Additionally, this chart was shared with nutritionists at other institutions (Smithsonian's National Zoological Park and Oregon Zoo) to increase the sample size and to evaluate inter-observer reliability. Having a standard and reliable BCS chart specific for red pandas will provide opportunities for improved husbandry, welfare, and nutrition of the species in zoological institutions.

References

AZA Small Carnivore TAG (2012). Red panda care manual. Silver Springs, MD.: Association of Zoos and Aquariums.

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