

**NZP Department of Nutrition Science
Standard Operating Procedures
VC 22.47 – Weight / Condition as a Management Tool**

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Statement of Practice

Body weight and body condition scoring are two of the most important tools we have to manage our collection animals. This SOP describes the establishment of target weights for individuals (or species), how weight and body condition score measurements are used for routine animal management, and the general management approach for animals outside of the target weight range. It includes general guidelines for weight gain and loss for collections animals, and describes communication procedures regarding weight change.

This SOP is predicated on the fact that scales will be and are available and functional such that every collection animal can be regularly weighed (at least monthly). If this is not possible, for whatever reason, it is recommended that the animals in question be immediately transferred to a location in the Zoo where it is possible, or out of the collection.

Procedure / Guideline

Reporting Body Weights / Condition Scores

Body weight measurements are reported in the daily keeper reports for all animals. When measured, body condition scores should also be reported in that fashion.

In cases where an animal has lost or gained more than 10% of its body weight from the previous measurement, it should be reported to WHS and DoNS through the curator in the area. This should be done directly, rather than relying upon the keeper report method of communication. Unexpected weight losses or gains of any amount should be reported in a similar fashion (again, rather than relying on the keeper report process).

“Unexpected” weight change could include the following:

- a weight/condition gain or loss of 10% or more when intake has been observed as “normal”
- a gain of more than expected with increase (or loss, with a decrease)

Weights and BCS measurements are only as useful as their regularity and interpretation. If, at any time, an animal’s weight or condition appears inappropriate, it should be immediately reported to DoNS and WHS, via the curator in the area.

Establishment of Target Body Weights

Target body weight (or a target body weight range) can be established in a variety of ways.

1. Ideally, a weight that corresponds to a BCS = 5/9 is determined, and then a reasonable range above and below that weight to define BCS 4/9 and BCS 6/9 is used as a target weight range. This is typically done at the time of the incoming quarantine exam, among the nutritionist, curator, keepers, and vets.
2. In cases where an animal arrives into quarantine under- or over-conditioned (based on BCS < 4/9 or BCS > 6/9), an initial target weight is established via the same collaboration as previously described, and then a weight range is established once the animal reaches an appropriate BCS.
3. Previous institution records can be used to establish trends in weight (seasonal patterns, or pre-shipment patterns), but is not heavily relied upon to establish an appropriate target weight range. All zoos maintain their animals in different condition, and a long-standing weight history for an animal does not ascribe appropriate condition. Appropriate condition is assigned using a system that pairs BCS and weight, avoiding sole reliance on either.
4. For this reason, use of SSP/TAG “average” weights for target weight of individual species is not desired. These weights can be used for general reference, but due to structural differences among individuals, they serve little clinical value.

Body condition score scales are not available for all of the species that we have in the collection. Most hoofstock have established or readily applicable BCS scales available. Several felids also have scales established. When scales are not available or established, we encourage the animal care staff (keepers, especially) to work to establish scales via uniform photo-documentation and descriptive terms (in coordination with DoNS). In lieu of such preliminary scales, the nutritionist, curator, and vets work together to establish objective descriptive terms to assign appropriate and repeatable BCS.

Routine Body Weight and Body Condition Scoring

Once in the collection, weight and body condition should be measured routinely. Quarterly weights and condition score measures may be enough for some animals that maintain their weight/condition well, whereas weekly or every-other-day assessment may be important for critical care animals or animals that are actively being managed for weight. In this case, the regularity of weight and body condition measurements is established by the curator, nutritionist, and vets, based on the clinical needs of the animal.

In general, a monthly weight is a good initial guideline. Body condition scores can be paired with those weights, as appropriate or needed.

As a general guideline, the following weights are appropriate for all animals in the collection:

- incoming quarantine weight / BCS measurement
- outgoing quarantine weight / BCS measurement
- monthly weights (unless prescribed more or less often, specifically through discussion with curators, keepers, nutritionists, and vets).

Management of Animals Outside of the Target Weight Range

If an animal is evaluated to be under- or over-conditioned, the animal is managed to attain a more appropriate (healthy) weight / condition. This can be achieved via adjustments in environment, activity level, and/or diet. During a period of active condition/weight modification, body weight should be

measured more frequently than usual. If monthly weights are the norm, bi-weekly or weekly weights may be more appropriate. This decision is a collaborative one among nutritionists, curators, and vets.

Weight gain and weight loss diets are often approached in a few ways.

1. If basal metabolic rate can be reliably and plausibly determined, caloric addition/restriction can be implemented to evince a theoretical amount of weight gain or loss over a specified period of time. In the case of large amounts of weight loss, this is done over the period of months, in a controlled fashion so as to not allow precipitous and detrimental loss of weight / condition. When weight change is managed in this fashion, it is often predictable (losses can be projected). In these cases, weight change outside of the predicted amounts should be reported to WHS and DoNS via the curator.

2. If an established weight/condition pattern exists for a collection animal, and response to previous dietary changes is well documented, slight percentage diet changes (5%, 10%, 15%) may be all that is required to elicit the desired change in weight/condition. In these cases, weight changes in excess of 10% (or otherwise out of what is considered expected) should be immediately reported via the curator.

3. Diet adjustments can be based on total amount of diet, or the energy density of the diet. This is often based on behavioral considerations, and either method can be effective in weight gain/loss. Regardless of the approach, unexpected weight / condition changes should be reported.

Weight/Condition Management for Season, Physiological Stage, Etc

Weight/condition is managed differently, based on life stage. It is difficult / impossible to accurately assign a BCS to a growing animal (perceived condition gain / loss impacted by structural change). However, weight should be monitored regularly, as with any other collection animal. Diet changes occur at strategic life stages (pre-weaning, weaning, sub-adult, adult, gestation, lactation), but are not pre-programmed. Diet changes are driven by weight and BCS. Just because an animal is pregnant or lactating does not automatically mean a diet change is in order. Such a decision is based on:

- weight and condition of the animal,
- weight and condition of the offspring,
- clinical conditions,
- management needs, and
- other variables

Such decisions are made cooperatively among nutritionists, curators, and vet staff.

The weight/condition of some collection animals are managed on a seasonal basis. Typically, the seasonal patterns for these animals are well known and predictable, such that regularly patterned diet changes evince regularly patterned weight change. Typically these changes are based on curator and keeper communication with DoNS, at the strategic times appropriate to the animal.

ADDENDUM 1

BCS and body weight as criteria for assessment of euthanasia of collection animals at SI-NZP

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For the purpose of assessing criteria for euthanasia:

In terms of weight loss, we first refer to NZP DNS SOP 22.47 – Weight/Condition as a Management Tool. If a target weight range has been established for an individual, its movement outside of this range raises concern and elicits action. Also, a loss/gain of 10% or more warrants immediate attention, particularly if this change is unexpected (i.e. no recent diet changes intended to change body weight). Ideally, we aim to keep animals in a 4-6/9 BCS range. There are however cases where geriatric animals fall below this range, but maintain at that point with normal appetite and appropriate diet consumption for some time. Cases where we might consider low body condition (possibly indicated by a loss in body weight) as a criterion for euthanasia would be if a steady pattern of condition and weight loss is observed that cannot be halted, despite efforts to alter the diet for gains, along with decreased appetite or outright refusal of food items. This, in conjunction with other observations of health and behavior should be considered in an overall assessment of welfare.