

D E S E R T T O R T O I S E
C O N S E R V A T I O N C E N T E R
San Diego Zoo Institute for Conservation Research

BODY CONDITION SCORES FOR DESERT TORTOISES



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Introduction

Body condition scoring (BCS) is a common scoring system developed for domestic animals to estimate the average body condition of animals in a herd. This system provides managers a relative score based on an evaluation of muscle mass and fat deposits in relation to skeletal features.

We have adapted this concept to the desert tortoise to help assess an individual's current body condition. Since animals vary in size, weight alone is not a good indicator of body condition. This score is dynamic and should improve if the animal is eating and the nutritional plane improves. Conversely, the score will decrease if inanition persists or the nutritional plane does not improve.

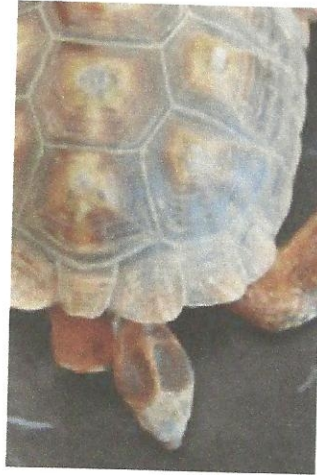
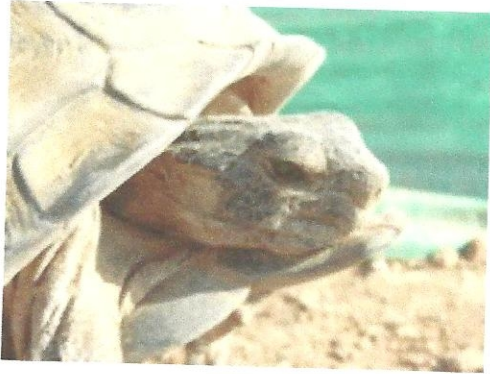
A tortoise's body condition will change with life stage, season of the year, drought, food availability, and disease.

Body Condition Scores (BCS):

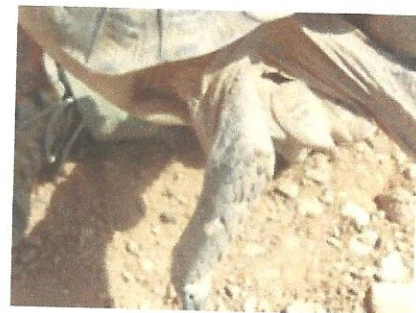
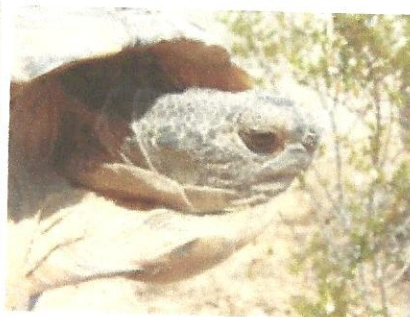
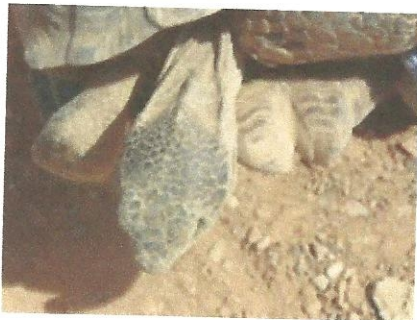
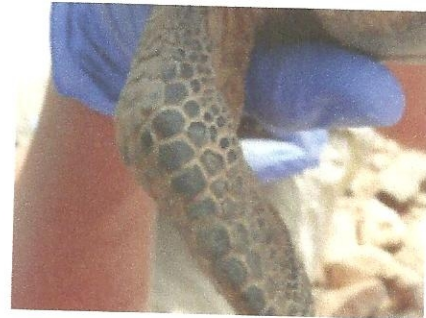
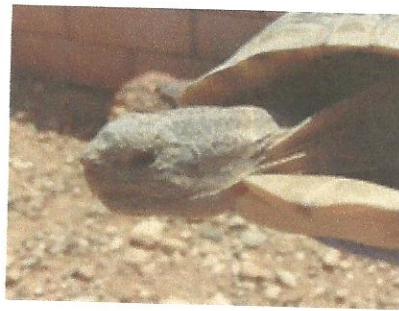
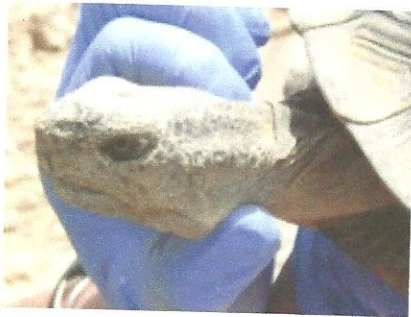
BCS is a score that ranges from one to nine. Assigning a BCS is a two-step process. The numbers are divided into 3 groups: 1-3, 4-6, and 7-9.

- 1) Choose the grouping that best describes the tortoise at this point in time.
 - a) Under condition (1-3)
 - b) Acceptable or good condition (4-6)
 - c) Over-condition (7-9)
- 2) Then "fine tune" the score by choosing one of the 3 numbers in the range using the descriptions below. PLEASE NOTE: Not all descriptors for a given score will apply to every tortoise. Choose the "best fit" for the individual at this point in time.

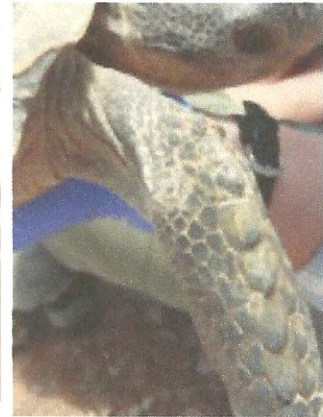
1. Emaciated: Coelomic cavity devoid of ingesta (tortoise feels empty). Obvious loss of muscle mass (distal forelimbs atrophied such that the muscle mass is reduced or concave, elbow prominent). Muscle mass on top of head absent giving the top of the skull a concave appearance. Sagittal crest prominent. Eyes sunken or closed. Animals in this poor state of condition will also be weak and listless.



2. Very Thin: Coelomic cavity lacks ingesta (tortoise feels light). Loss of muscle mass (distal forelimbs atrophied such that the muscle mass is reduced, elbow easily palpable). Muscle mass on top of head reduced and concave. Sagittal crest easily visible. Eyes sunken or closed. Similar to BCS 1 but may be more active and alert.



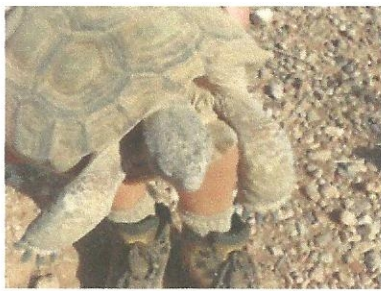
3. Thin: Coelomic cavity lacks ingesta (tortoise feels light). Loss of muscle mass (distal forelimbs atrophied but not concave). Muscle mass on top of head palpable and flush with skull. Sagittal crest palpable but may not be easily visible.



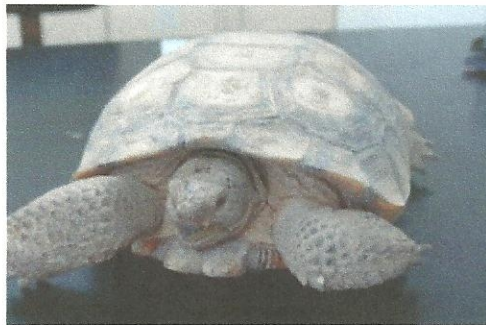
4. Lean: Coelomic cavity contains ingesta (tortoise feels slightly lighter than expected for it's size). Small amount of muscle mass palpable along proximal forelimbs and rearlimbs. Muscle mass along anterior aspect of forelimbs flat and elbow palpable under muscle. Muscle mass palpable on top of head and slightly convex, but there is not a clear delineation between the right and left side. Sagittal crest not visible.



5. Ideal: Coelomic cavity contains ingesta (tortoise feels heavy/solid/dense). Moderate amount of muscle mass palpable along proximal forelimbs and hindlimbs. Muscle mass along anterior aspect of forelimbs slightly convex. Muscle mass easily palpable on top of head and has a bilobed appearance.



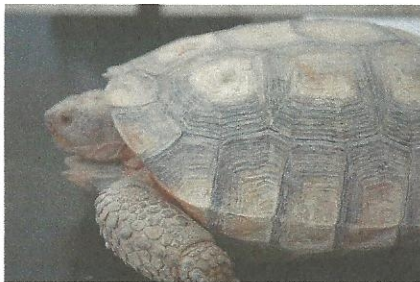
6. Plump: Coelomic cavity contains ingesta (tortoise feels heavier than expected). Moderate amount of muscle mass palpable along proximal forelimbs and rear limbs. Muscle mass along anterior aspect of forelimbs very convex. Prominent muscle mass on top of head.



7. Heavy: Coelomic cavity contains ingesta (tortoise feels heavier than expected). Moderate amount of muscle mass palpable along proximal forelimbs and rear limbs. Muscle mass along anterior aspect of forelimbs very convex. Slight subcutaneous fat in cervical, axillary, and/or inguinal regions. Prominent muscle mass on top of head.



8. Obese: Coelomic cavity contains ingesta (tortoise feels heavier than expected). Moderate amount of muscle mass palpable along proximal forelimbs and rear limbs. Muscle mass along anterior aspect of forelimbs very convex. Moderate subcutaneous fat in cervical, axillary, and/or inguinal regions. Prominent muscle mass on top of head.



9. Morbidly Obese: Coelomic cavity contains ingesta (tortoise feels heavier than expected). Moderate amount of muscle mass palpable along proximal forelimbs and rearlimbs. Muscle mass along anterior aspect of forelimbs very convex. Pronounced subcutaneous fat in cervical, axillary, and/or inguinal regions. Prominent muscle mass on top of head.

