

September 5, 2013

**Title:** Activity monitors in GPS collars require correction for timing errors

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### **Table S1. Supplemental Material Readme**

The data presented in Table S1 is comprised of direct behavior observations of five captive female Rocky Mountain elk (*Cervus elaphus nelsoni*) paired with dual axis activity monitor data from GPS collars worn by those same animals over the same time period. Data has been paired using Interval Start Times (ISTs) shifted using the procedure described in Gaylord and Sanchez (2013). Data were collected at Starkey Experimental Forest and Range, USFS, in Starkey, Oregon, during the summer of 2011. Table S1 includes the following variables collected by the activity monitor collars (c), direct observations of animal behavior (o), or both (b):

- Date (b): date the behavior was observed
- Original IST (c): interval start time (IST) provided by the collar output
- Time shift: number of seconds we shifter the collar IST in order to pair direct behavior observations (o) to activity monitor data (c) in a logical manner
- Shifted IST: interval start time after application of the time shift
- Observer (o): initials of the researcher recording behavior observations
- Animal (o): number associated with an individual elk
- Pasture (o): pasture where we observed the elk

- Weather (o): qualitative notes on weather conditions during behavior observations
- Temperature (o): temperature (°C) at beginning of behavior observation session
- Insect severity level (o): qualitative measure designed for another study at Starkey (R. Cook, unpublished data) ranging from 1 (animal not visibly reacting to biting insects) to 3 (animal behavior obviously altered due to biting insects)
- End time of activity (o): time at which an observed behavior ended
- Activity (o): one of nine elk observed behavior classes (bedded, bedded-ruminating, standing, standing-ruminating, grazing, browsing, walking, trotting, or galloping)
- Duration (o): duration (sec) of each activity
- X (c): activity monitor value recorded by accelerometer that was oriented horizontally across the animal's shoulders for a sampling interval
- Y (c): activity monitor value recorded by accelerometer that was oriented horizontally parallel to the animal's spine for a sampling interval

Every sampling interval is labeled with a date and original IST and includes the time shift, shifted IST, and X and Y activity monitor value. Intervals may include only a single line of observation data (observer, animal, pasture, weather, temperature, insect severity level, and end time of activity) associated with a single activity 300 seconds in duration. These are known as “pure intervals”. Other intervals include multiple lines of observation data associated with multiple behaviors that occurred during that interval. These intervals are known as “mixed intervals”.