

Instructions for Giant Panda Pregnancy Record-Keeping System

- If you don't know for certain whether a particular behavior or condition was present, please do not guess. Record a "/" for that entry to indicate that you do not know. When analyzing the data, this will be treated as a "missing value" rather than a "0." For example, on some days you may not be able to get a good look at the vulva or the mammary glands. Or you may simply not have observed that female on that day, or not spent as much time observing her as you normally do. If, for example, you observed a female for only a few minutes in the morning and she was eating bamboo, you really have no idea whether she was less active or licked her vulva on that day.
- If it was impossible for a particular behavior or condition to occur on that day, please record a "/" for that entry. For example, she may be locked in her bedroom, and therefore unable to express aggression toward another panda.
- If a particular behavior or condition was not observed that day, despite a "normal effort" to observe that animal, record a "0."
- If a behavior/condition changes slightly from baseline for that animal, record a "1." For example, if the appetite is a little decreased score a "-1", or the vulva are a little more pink or dilated, record a "1." Similarly, if she licks her vulva a little or paces a little more than usual, record a "1."
- **Record a "2" if the behavioral changes are moderately elevated, and a "3" if they are dramatically elevated**, that is, close to the maximum you have observed for this behavior/condition.

Pregnancy ethogram

- **Mammary glands enlarged.** Note any swelling of the nipples or mammary glands.
- **Vulva enlarged.** Note any swelling of the vulva.
- **Vulva reddening.** Note any reddening of the vulva.
- **Vulva dilated.** Note any changes in the size of the vulvar opening.
- **Licks vulva.** Note whether the female licks her vulva.
- **Licks nipples.** Note whether the female licks her nipples.
- **Water breaks.** Discharge of large quantities of amniotic fluid. Note time and number of hours prior to parturition that this takes place.
- **Nest building.** Female shreds or gathers materials such as grass mat, bamboo or other vegetation, etc. and places it in a specific location such as her den or a corner of her bedroom.
- **Pacing.** Female paces back and forth or around her pen. Pattern may or may not be stereotyped. If this animal paces habitually, score a "1" only if her level is elevated above her normal baseline.

- **Restless.** Female frequently changes position, gets up and lies down, or frequently switches between activity and inactivity. Female may appear uncomfortable or agitated.
- **Activity.** Sustained locomotor activity or movement of the body (e.g., scratching, rolling).
- **Increased aggression.** Note whether the female's aggressiveness toward neighboring pandas increases. "Aggression" includes agonistic vocalizations, such as moan, bark, huff, snort, growl, and roar, as well as actions such as charging or lunging, paw swatting, etc.
- **Urination.** Note any changes in the frequency of urination. You may use a combination of direct behavioral observation as well as counting urine puddles in the enclosure to determine frequency of urination.
- **Defecation.** Note any changes in the frequency of defecation. Also, in "Notes" record failed attempts at defecation.
- **Appetite.** Monitor the female's food intake, (bamboo, biscuits & veggies should be monitored individually). For any decrease in appetite score a negative value (i.e. -2), for any increase, score a positive value. If the female's consumption decreases as a result of mucus stool, stomach upset, or some other illness, please place an asterisk (*) by the entry on the record sheet and make a note of this in the comments.
- **Panting.** Note any rapid breathing.
- **Uterine contractions.** Record the timing of all uterine contractions, evidenced by contraction of abdominal muscles.