

This data package was produced by researchers working on the Shortgrass Steppe Long Term Ecological Research Project. This project was supported by National Science Foundation from 1982-2014. This data package includes one or more tab-delimited data tables, tab-delimited files (named \_var) that denote header definitions and data types for each column, and detailed metadata within an Ecological Metadata Language document (i.e. XML). Example image files of plots, digital datasheets, or schematics of the experimental design may also be included when applicable.

Background information on the SGS-LTER project is contained in related series of objects within the Digital Collections of Colorado and the Colorado State University archives. Together data packages and other background information, including items such as images, proposals, and reports contribute to a comprehensive SGS-LTER collection.

The data tables and associated EML documents represent components of a PASTA (Provenance Aware Synthesis and Tracking Architecture) congruent LTER data package, which may be discovered and accessed through secondary repositories serving specific ecosystem science domains (e.g. LTER Network Information System, DataONE, or The Knowledge Network for BioComplexity).

The following information was obtained from the SGS-LTER Field Crew Manual:

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### **SGS-LTER Long-Term Monitoring Project Small Mammal Population Studies**

***EQUIPMENT: 380 Sherman large live traps, peanut butter/oats balls in wax paper (ca. 1000), loose peanut butter/oats mixture, wool, hantavirus safety gear, 2 sets of ear tags and pliers, (2) each of blue/green/orange/red Sharpies marking pens, data sheets, 2 pesola scales (100-300g each), (2) 6" rulers, (2) boxes of 1-ga ziplock bags, 3-4 technicians (depending on experience).***

***PERMITS: Annual reports and trapping permit renewal from Colorado Division of Wildlife; Renewal of permission from CSU Animal Care and Use Committee; Annual reports to CPER/LTER.***

1. Each web trapped for four consecutive nights in mid-May and in late-August/early-September. Trapping coincides with the period of the new moon (i.e., between last and first lunar quarters). Three webs are trapped concurrently, with both upland and lowland webs represented in each period. At present, we will trap webs **26NW, 27NE, 24NE and 31E** in the first trapping period, and webs **25NE, 13SW, and 13NW** in the second.
2. Prior to the trapping sessions, all missing flags at trap stations should be replaced and re-marked. A single trap is placed at each station and four traps are placed in the center ring (124 traps per station). Bait balls are placed at the backs of traps before setting, and a small (ca. 1.5" dia) ball of wool is placed at the rear of the trap. Once set, a small pinch of loose bait mixture is placed on the open door. Begin setting traps are set 1.5-2 h before sunset.
3. Check traps at dawn, with technicians working in pairs (one person handling and one recording). Record weather, using temperature at LTER headquarters. Lowland webs typically have more animals and these should be checked first. Shake captured animal into a plastic bag and weigh bag plus animal and trap contents. Grab animal by scruff of neck and mark throat and chest thoroughly with marking pen (each web in a given trapping period will use a different color mark). If an animal has already been marked and the mark has faded considerably, then re-mark. Age, sex, diagnose reproductive

condition, and identify animal to species (see codes), then release at capture location. Weigh bag and remaining contents, and calculate mass by subtraction. Replace bait balls and soiled cotton.

**FOR EAR-TAGGING (after 1997):** Some captured individuals will have ear tags from a previous trapping session. The first time that these individuals are captured in later session, they are recorded as **■O• (old•)** in the CAPT column. If these individuals are captured again (on another night in the same session), they are recorded as **■R•** in the CAPT column, like all other recaptures. **When preparing the data sheets for subsequent mornings**, at the top of the morning's data sheet, record the numbers of all of the **■O•** individuals captured to date on that site during that session. This will make it easy to determine if individuals captured are old or recaptures without having to carry and search through data sheets from earlier nights.

4. Make sure that all traps are empty, closed, and contain bait balls. All traps should be closed in the AM and re-opened again at sunset, replacing the bait "chum" on doors.

5. On the fifth day, pick up all traps and move to other webs. After all webs have been trapped, remove bait balls and store traps in garage at LTER headquarters.

## SGS-LTER Long-Term Monitoring Project Small Mammal Population Studies (cont'd)

6. To be recorded at start:

**DATE (day-month-year)** **WEB #**  
**NIGHT (1,2,3,4)** **OBSERVERS (initials)**  
**MOON (leave blank)** **CLOUD (% cloud cover)**  
**PRECIP (D=dry, R=rain, S=snow, F=fog, L=light rain/drizzle)**  
**TEMP (in C degrees)**  
**WIND (use approx. mph or LTER codes)**  
**COLOR (if using web mark color)**  
**#SPRUNG (#traps closed but empty that morning)**  
**OLD CAUGHT (numbers of old individuals captured on the site so far)**

7. To be recorded at capture stations:

**TRAP # (01-124, starting with N line; 4 traps at center are all recorded as 124)**  
**CAPT history (N = first capture, R = recapture, O = old)**  
**TAG# (ear-tag number)**  
**SPECIES (see list of codes)**  
**AGE (A=adult, S=subadult, J=juvenile; see list of codes)**  
**SEX (M=male, F=female)**  
**REPR (R=reproductive, N=non-reproductive; see list of codes)**  
**WEIGHT (to nearest 0.5 g)**  
**COMMENTS (total mass - mass of bag/contents, any unusual marks, injuries, etc.)**

8. Data files are called "ROD\*\*.DAT", where \*\* is the three letter abbreviation for the month and the last two digits of the year (e.g., RODSEP94.DAT). These files are ASCII space-delimited and contain the following information for each capture in this order:

[illegible]

Observer and weather information is kept on the original data sheets.

Shortgrass Steppe Long-Term Ecological Research Project

**LONG-TERM POPULATION MONITORING OF SHORTGRASS-STEPPE RODENTS**  
**Standard Operating Procedures for Handling Captured Rodents**

*Revised 3 October 2002*

1. Please read over Mills et al. (1995; J. Mammal. 76:716-722) to be sure that you understand the risks and safety precautions for minimizing exposure to hantavirus. All crew members should be fitted with a half-face HEPA-approved respirator and wear Tyvec or other protective coveralls and latex gloves.
2. Begin checking traps at first light in morning. Close trap-lines with 1-3 other crew members; it may be most efficient to work in pairs, with one person recording data and the other handling animals.
3. Upon finding an occupied trap, prepare all marking, weighing, and data collection materials before removing the animal. Handle the animal downwind from you.
4. Wrap the opening of the plastic freezer bag around the trap entrance. Gently shake the animal into the bottom of the bag, then close the entrance behind the bag and remove the trap.
5. Through the bag, check the species and to see if previously marked. Note age and sex if possible. Release if marked.
6. If the animal is unmarked or if species identification, age, or sex cannot be determined, grasp the animal's fur at the nape of the neck through the plastic bag. Your grip should be firm but not too tight. In general, the animal will struggle less if it is firmly under your control.
7. With your other hand, pull the opening of the bag around the animal, so you can expose it's ventral side. Check and record the species, sex, age, and reproduction condition, using the information on the Species Identification handout. Take measurements if needed for identification. Mark the animal's throat thoroughly with the Sharpie colored marker. If the species is to be ear-tagged (check with field supervisor), place one aluminum tag in the animal's right ear. Make sure that the tag is fixed as close to the ventral end of the ear and as far in as possible to minimize the chance of the tag tugging at the ear pinna or being torn off.
8. Release the animal into the bag again and twist the opening closed. Weigh the animal using the Pesola spring scale. You may need to shelter the bag from the wind to obtain an accurate reading.
9. Check to make sure that the animal is marked and all parameters are recorded, then release the animal at the capture location. Weigh the empty bag (or with cotton/bait if present during weighing of animal) and determine the animal mass by subtraction.
10. Check to make sure that the released animal is behaving normally, e.g., seeking cover or in burrow. Place soiled wool in trap or plastic bag and bring trap to the center of web for later cleaning.
11. Upon returning from headquarters, wash your hands thoroughly with antiseptic soap. Discard all soiled wool, gloves and plastic bags in an outdoor trash container. Wash traps in household disinfectant and plenty of water, then rinse and allow them to dry outdoors.