Standard Operating Procedure (SOP) 5: Equipment and Task Lists

Protocol for Monitoring Small Mammals

Central Alaska (CAKN) Inventory and Monitoring Network

Melanie J. Flamme

National Park Service
4175 Geist Road
Fairbanks, Alaska 99709

September 2018

U.S. Department of the Interior
National Park Service
Natural Resource Stewardship and Science
Fort Collins, Colorado

Please cite this Standard Operating Procedure as:

Flamme, M. J. 2018. Standard Operating Procedure (SOP) 5: Equipment and Task Lists. Protocol for Monitoring Small Mammals in Central Alaska (CAKN) Inventory and Monitoring Networks. National Park Service, Fairbanks, Alaska. Available online at https://irma.nps.gov/App/Reference/Profile/2219630.

The main Narrative for the Protocol for Monitoring Small Mammals in Central Alaska (CAKN) Inventory and Monitoring Networks is available from the NPS Inventory and Monitoring Central Alaska Network website (http://science.nature.nps.gov/im/units/CAKN/) and the Natural Resource Publications Management website (http://www.nature.nps.gov/publications/nrpm/

SOP 5 –Equipment and Task Lists

Standard Operating Procedure #5
Version 1.0 (September 2018)

Revision History Log:

Previous Version #	Revision Date	Author	Changes Made	Reason for Change	New Version #
Add rows as needed for each change or set of changes associated with each version.					

SOP 5- Contents

Page

SOP 5.0 – Introduction 4

SOP 5.1 – Plot Flagging Equipment List 4

SOP 5.2 – Camping Equipment Checklist for Each Crew Member 4

SOP 5.3 – Research Equipment Checklist for Each Crew Member 6

SOP 5.3.1 – Research vest/fanny pack equipment kit gear list 7

SOP 5.3.2 – Tagging kit list 10

SOP 5.3.3 – Extra research and camping equipment available in camp 10

SOP 5.4 – Evening Checklist to Prepare for Morning 12

Appendix 5.1 – Example: Field Gear and Food List 14

SOP 5.0 – Introduction

SOP 5 is comprised of gear lists. SOP 5.1 is an equipment checklist for each crew member's camping equipment. SOP 5.2 is an equipment checklist for each crew member's small mammal research vest/fanny packs. SOP 5.3 has a checklist for additional shared research, safety and camping equipment. SOP 5.4 has an evening checklist of preparations for the next morning's trap check. The project manager(s) for a survey should ensure that there are enough sets of these equipment for each crew member participating in the survey. The project manager(s) must also test all equipment during the pre-season to ensure that they are in working order before sending assembling the kits. SOP Appendix 5.1 provides a field gear and food option packing list for crew members

SOP 5.1 – Plot Flagging Equipment List

The week before the field work is conducted, a crew of 3-6 people will drive to Denali in a GOV for the day to haul in traps and flag and label plots at the Rock Creek study site. Prior to departing to Denali for the day, the crew will need to gather these items for the plot flagging effort:

- 10 trap boxes (5 boxes at Rock Creek camp; 5 boxes hauled to upper plots RF1 and RF2)
- 10 large, heavy duty garbage bags
- 6 large back packs (or 1/person)
- 12 thick black Sharpies (or 2/person)
- 1 small yellow Rite-in-Rain field notebook (to make notes on which metal tags are missing)
- 6x rolls each of pink and blue flagging (red or orange and green hard to see in fall foliage) (or 1 pink and 1 blue each for each person)
- 6x pepper sprays with carabiners (transport in ammo cans for safety) (or 1/person)
- 6x walkie talkies with fresh batteries (or 1/person)
- Satellite phone with cigarette plug cord and charged batteries
- Lunch and water for each person
- Cameras and cell phones (optional)
- Bug spray and sunscreen
- Raingear, knee boots or hiking boots, sunglasses, warm clothes for each person
- Reserve a GOV and do travel authorizations for each person on the day trip
- Do the vehicle inspection from and obtain a "pink safety tub" prior to departure

SOP 5.2 – Camping Equipment Checklist for Each Crew Member

Each crew member will be assigned the following camping equipment for the surveys issued from NPS:



- Large backpacking pack (with pack cover, if desired)
- Bear barrel with bag liner
- Small two-person tent with fly and ground cloth
- Small tarp (to cover tent)
- Sleeping bag (0-20 degree F)
- Sleeping pad
- Pepper spray with holster and colored carabiner
- Potty kits: Each kit includes in a gallon Ziplock:
    - 1 roll toilet paper in a quart-sized Ziplock
    - 2 additional quart-sized Ziplocks for "icky bags" into which to dispose of waste paper
    - 1 small packet of Handiwipes
    - 1 small bottle of hand sanitizer
- Day packs (optional, upon request)

Please see Appendix SOP 5.1 for a copy of the complete gear and food option checklist for crew members.

SOP 5.3 – Research Equipment Checklist for Each Crew Member

When staging for the Small Mammals survey, the project managers should ensure that enough sets of the following research and safety equipment are available and functioning for each of the crew members on the survey. There are some things such as the GPS units, satellite phone, GoPro camera, digital cameras and SPOT units that can be kept at the main Rock Creek camp and/or shared by crew members. Cameras can be carried on differed days by crew members. At least two sets of spare electronics, tagging kit equipment (needles, plungers, iodine, antibiotic ointment), Pesolas and pepper sprays are also recommended should there by a loss or malfunction of equipment. After each trap check, research vests and kits will need to be re-stocked with bait, nestlets, nitrile gloves and gallon and quart-sized bags, mort and swab kits if crew members are running low. Taggers may also need to replenish with new needles.

Each crew member will be assigned either a vest or fanny pack (research kit) to use for the duration of the study. Inside their fanny pack or vest, each crew members is assigned a specific reader, walkie talkie, Pesola (100 g scale), pepper spray, data notebook, bait and nestlets, and tagging kit (for taggers only). All items are flagged and each crew member labels everything in with their name. In addition, readers are named (e.g. Julia, Anna, etc.). Crew members are responsible for keeping track of the items and re-stocking their kits. Crew leaders will wear vests and carry additional items (first aid kit, extra traps and trap covers).



Example of electronics assignments:

Crew member	PDA	Reader	Camera
Mel Flamme	none (only 6)	Fred	personal iPhone
Mariah Savoie	Cassandra (C)	Thelma	camera 1
Julia Brice	Gulliver (B)	Julia	camera 2
Anna Quist	Vlad (A)	Louise	Go Pro
Tyler Brose	Ghengis (F)	Hoover	camera 3
Patrick Knavel	Marc Antoinette (D)	Ed	camera 4
Eliza Lawler	Eloise (E)	Minerva	personal



The photo at left shows an observer wearing a research vest stocked with all of the required data collection, mark-capture, trapping and safety equipment for the surveys. Items are organized into the many pockets in the vests and fanny packs for ease of use. Items are stocked in vests and fanny packs in consistent locations so all field crew members know in which pockets to find them. Copies of data collection protocols/cheat sheets, species and sex ID sheets, extra food, spare warm clothes, rain gear, bug protection are stored at camp. The lists below detail what is stocked in the research vests and fanny packs.

SOP 5.3.1 – Research vest/fanny pack equipment kit gear list

The list for outfitting a research vest/fanny pack is below. Each crew member is assigned either a specific vest or fanny pack to conduct the field work. These are flagged and labeled with each crew members name and are used by the same crew member for the duration of the survey. Before outfitting the vest or fanny pack, all equipment in the kit is tested, flagged and labeled. Equipment may get dropped in the shrubs. Bright pink and blue flagging make these items visible. Labeling

equipment with names keeps crew members accountable for research gear and keeps kits complete. Each kit includes:

- 2 fat black Sharpies
- 2 skinny black Sharpies
- 3 mechanical pencils
- 1 small yellow Rite-in-Rain data notebook with data fields
- 1, 100g Pesola (scale) with clip
- 1 roll each of pink and blue flagging (red or orange and green are hard to see in fall foliage)
- 5 pairs nitrile gloves (crew member must grab correct size for their kit)
- 1 pair gardening gloves (crew member must grab correct size for their kit)
- 5 gallon and 5 quart-sized ziplocks
- 20 DNA swab kits (see photo below-**optional sampling**). Each kit gets:
  - 1 swab tag on Rite-in-Rain paper
  - 1 Epicentre DNA swab
  - Nunc or Eppendorf tube with Longmire DNA preservation buffer
  - sandwich or snack-sized Ziplock bag
  - mini tool with scissors
  - (If Eppendorf tube, then also pack a square of Parafilm to wrap about the snap cap of the tube so the buffer does not leak; this is not required for the screw-cap nunc tube.)



- 5 mort kits. Each kit gets:
  - mort on Rite-in-Rain paper
  - sandwich or snack-sized Ziplock bag
- 1 reader with fresh batteries

- 1 walkie talkie with fresh batteries
- 1 quart microwaved sunflower seeds in plastic baggie
- 1 quart bag full of nestlets in plastic baggie
- 3 extra Sherman traps
- 3 extra trap covers
- water bottle (optional but recommended)
- pepper spray with colored carabiner
- rain gear
- digital camera (optional)
- GoPro camera (optional)
- (fully charged iPad loaded with Park Observer Small Mammals protocol and Rock Creek Map-beginning in 2018)



SOP 5.3.2 – Tagging kit list

The list for outfitting a tagging kit is below. Only experienced crew members who are trained as taggers carry tagging kits. Kits are flagged and labeled by tagger name with duct tape. Each tagging kit includes:

- 100 PIT tags in a film canister
- eyedropper of Betadine for cleaning needles
- 5 new needles with plastic guards on their tips (these should be replaced as they get dull)
- 1 tube Betadine ointment for keeping tag in and sealing wound
- 3 injectors/syringes for tags
- 3 pairs nitrile gloves (check with tagger for correct size; these should be replaced frequently)

SOP 5.3.3 – Extra research and camping equipment available in camp

- **Digital cameras:**
  - spare AA batteries
  - spare memory card
  - battery charger – small, plugs direct into outlet
  - white USB download cable – can also use black Garmin cable
  - instruction manual
  - carrying case
- **GoPro digital camera:**
  - spare GoPro battery
  - spare memory card
  - battery charger – small, plugs direct into outlet
  - white USB download cable – can also use black Garmin cable
  - instruction manual
  - selfie stick
  - helmet
  - helmet harness GoPro
  - bendable large and small tripods
  - chest harness
  - carrying case
- **1 Satellite Phone plus:**
  - instruction manual
  - emergency phone list for DENA, ARCC and YUGA
  - external antenna plus adapter arm (normally hooked together in case)
  - cigarette lighter charger – keep in vehicle in case battery dies
  - 2 spare sat phone batteries (fully charged prior to field work)
  - wall charger
  - Pelican carrying case
- **1 Garmin Map76csx plus (used if necessary to navigate to plot corners)**:
  - downloading cable (can use camera's cable for downloading as well)
  - spare AA batteries
- **1 SPOT device (used after 2000 trap check)**:
  - spare AAA batteries

- **Laminated SOPs/protocols** for the survey, ARCC backcountry plan, emergency contact numbers, small mammal species and sex ID sheets, MacDonald et al. small mammals ID booklet, satellite phone numbers (YUGA, ARCC, DENA), satellite phone instructions
- **440 Sherman traps (12 trap boxes of 20; 11 to be hiked into camp; 1 box can stay in vehicle)**
- **420 trap covers**
- **Extra blue and pink flagging**
- **50 extra metal tags (for marking trap locations)**
- **2 Extra Leatherman tools (useful for fixing traps)**
- **Extra metal bear barrel (for food overflow)**
- **Extra mechanical pencils**
- **Extra Sharpie markers (thick and fine point, black)**
- **1 roll Gorilla Duct tape**
- **Extra Ziplocks in gallon, quart, sandwich and snack sizes**
- **Trash bags**
- **Giant tarps for main camping/cooking area (stashed in Knack box)**
- **Extra bunjees (stashed in Knack box for securing tarps)**
- **Extra bear barrels (left in vehicle)**
- **2 Hanging gravity drip water filters**
- **2 Steripen water purifiers**
- **Collapsible water buckets (stashed in Knack box)**
- **Extra gardening gloves (stashed in Knack box)**
- **Bleach wipes, hand sanitizers and hand soap**
- **Extra tagging kit items**
    - Needles
    - Plungers
    - PIT tags (in film cannisters)
    - Iodine
    - Antibiotic ointment
    - Nitrile gloves (box of small, medium and large sized)
    - Sharps container
- **Extra toilet paper**
- **Extra sporks**
- **Extra camp food (stored in locked vehicle)**
- **Camp chairs**
- **Park radio with fully charged batteries**
- **2x complete first aid kits freshly stocked with:**
    - Benedryl
    - Advil
    - Tylenol
    - Motrin
    - Immodium
    - Aspirin
    - Sam's splint

    - Bandages
    - Antiobitic ointment
    - Antiseptic
    - Alcohol wipes
    - Tweezers
    - Wound dressing material (gauze)
    - Ace bandages
    - Emergency blanket
    - Lighter
    - Vet wrap
    - Nitrile gloves
    - Thermometers
    - Pencil
    - Matches
    - Athletic tape
    - Scissors
    - Face shield
    - Moleskin
    - Second skin dressing (for burns)
    - Hand sanitizer
    - Triangular bandage
    - Wildlife emergency care booklet
    - Steristrips
    - Electrolyte solution
    - Tampons
    - Non-adherent bandages
    - Iodine swab sticks
    - Cotton swabs
- **6 iPad Air in waterproof cases and screen protectors (coming in 2018):**
    - 8 x lightning USB cords (one for each plus a few extras)
    - 8 x USB chargers
    - 8 x backup battery charging bricks with cords (fully charged prior to field work)
    - Loaded with the newest version of Park Observer, the updated DENA Rock Creek map and the most current Small Mammals protocol (data sheet)

SOP 5.4 – Evening Checklist to Prepare for Morning

This is a list of the things crew members complete after either the 1300 or the 2000 hour trap checks to ensure preparedness for subsequent 0600 trap check. The crew usually wakes at 0500 each morning prior to breakfast before departing. Ten to 15 minutes is required to hike to plots. These tasks are best accomplished the evening before to make the morning more efficient and arrive for trap checks promptly at 0600.

- **Wash hands with bleach wipes, hand sanitizer and/or soap**
- **Replenish gallon-sized animal processing bags**
- **Replenish quart, sandwich and snack bags**
- **Dump sampling trash**

- **Replenish bait (1/2 quart)**
- **Replenish nestlets (full quart)**
- **Remove morts (ensure tags are fully completed, morts are entered into data notebooks and iPads and place animals in mort containers in a cool place)**
- **Replace batteries in walkie talkies (if needed)**
- **Turn off walkie talkies (turn on again in am)**
- **Replace batteries in readers (if needed)**
- **Turn off readers (if a cold night, keep readers warm in your sleeping bags)**
- **Replace batteries in cameras**
- **Fill water bottles**
- **Replenish nitrile gloves**
- **Take pepper spray to your tent (remember to bring back with you in am)**
- **Take headlamps to your tent**
- **Take rain gear and boots to your tent (remember to bring them back in am)**
- **Set alarm clocks (charge your phones if you need to)**
- **Update field notes and ensure data notebooks are complete (do this after each trap check)**
- **Make sure all bear barrels are closed and turned upside down (so they won't get rain in them)**
- **Clean up all food and trash from camp (before leaving camp-BEAR SAFETY)**
- **Lock up both Knack boxes (before leaving camp-BEAR SAFETY)**
- **Make sure lanterns are turned off**
- **Taggers-make sure to grab additional needles and tags if needed**
- **Taggers-make sure to put used sharps in sharps container**
- **Take headlamps (for evening checks)**
- **Remind PI to make daily check-ins calls to ARCC (1000 and 1800)**
- **Send evening SPOT message after 2000 trap check**

Appendix 5.1 – Example: Field Gear and Food List

Gear For Crew Member to Bring	**Park Will Provide:**
Lighter/matches (H20proof)/firestarter	first aid kit
Leatherman/knife	signal mirror/whistle
Water bottles (bring two liter-sized)	duct tape
binoculars (optional)	Cord
camera/film or digital camera or cell phone (optional)	Water tablets
goofy novel (optional)	bear spray
gallon Ziplock (about 10 for toiletries, etc.)	pencils
hefty bags (just a couple-you never know when you'll need them)	field notebooks
small battery powered alarm clock	extra batteries (AA)
wrist watch	bug dope
small head lamp or mini mag flashlight (a must!!!)	mosquito head net
plastic mug with lid and wide bottom	all research equipment
light plastic bowl or Tupperware container (for eating out of)	walky talkies
cell phone (optional-they work from camp and can be useful for coordinating	gloves for checking traps
cord and battery charger for cell phone	water filters
spork or spoon	bunjee cords
Back up battery, charger and cord to charge your cell phones	nitrile gloves
Clothing (suggestions)	gardening gloves
zip-off hiking pants (2 pair)	
wicking tights or long-johns	
wicking shirt (long-sleeved) or long-johns	**Camping gear park will provide:**
wicking tee	sleeping pads
polar fleece coat	sleeping bags
4 pair smart wool socks	tents
durable rain gear (the shrubs eat rain gear on the plots)	tarps to cover tents
windbreaker	bear barrels for food
ball cap	back packs
warm hat	pack covers
polar fleece vest with pockets	extra utensil, bowls and mugs
2 t-shirts (for sleeping in or hot days)	dry bags
Xtra-tuffs or waterproof knee boots (a must!!)	stoves and fuel
pair gloves and/or mittens	lighters
Hiking boots and/or camp shoes (optional)	
sunglasses and strap	**Toiletries park will provide:**
down coat	Handiwipes and bleach wipes
underwear (4 pairs	biodegradable soap
slippers, Crocs or shoes for camp	bag balm or lotion for cracked hands
sweats, boxers etc. to sleep in	hand sanitizer
bandana (optional)	toilet paper
	Potty kits
	Bug spray

Gear For Crew Member to Bring	
Toiletries	
toilet paper (optional)	
small tooth brush	
tooth paste (small-in ziplock)	
small washcloth	
any other toiletries you may need (hair bands, tampons, comb, etc.)	
sunscreen and lip balm	
bug dope	
toiletry bag to keep all of your goodies in	
Extras	
moleskin for feet (optional-depends on your feet)	
gel inserts for hiking boots or extra tuffs (optional-depends on your feet)	
bag to keep your dishes in within the Knack box	

Ideas for food	**Lunch & Snacks Ideas**	**Dinner Ideas**
Breakfast Ideas	peanut butter and jam	tasty bites (spicy Thai or India food)
Granola	cheese (swiss, gouda and jarlesburg keep well)	Lipton noodles and sauce
Powdered milk and cereal	sausage	Lipton rice and sauce
Bars (Nutra Grain, granola, etc.)	bars (Protein Plus, Clif, etc.)	Annies mac and cheese
Coffee	gorp	burritos (tortillas, dehydrated beans, cheese)
Hot chocolate	dried fruit or fruit leather	salt and pepper
Tea	pilot bread or tortillas	seasoning
Instant Cream of wheat	Pepperoni	cheese (swiss, gouda, asiago)
Instant Oatmeal	dried salami or summer sausage	Dried sausage, pepperoni or summer sausage
Sugar, honey or sweetener	jelly bellies or other candies	Tasty Bites
Dried fruit	beef jerky	Instant mash potatoes
crystal light	chocolate-Hershey bars, etc.	rice (boil in a bag)
Gorp	Instant soup packs	freeze dried meals (these are more expensive but light)
	Top Ramen or instant Thai noodles	foil package tuna and chicken
	nuts	tabasco
	tuna fish (in foil packs)	Instant Pad Thai or Thai peanut dinners
	bagels	Hot Soups (Lipton or Bear Creek)
	dried hummus or black beans	Top Ramen or Thai Ramen