



SALMON PROTECTION AND WATERSHED NETWORK

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Spawning Salmon Survey Protocol



Thank you for joining SPAWN and helping protect the coho salmon and steelhead trout in the Lagunitas watershed. The data you collect will be used to assess the health of fish populations in San Geronimo Valley. You will learn about the creek systems in the San Geronimo Valley, how to survey creeks without impact to the salmonids and habitat, identify the common salmonid species found in the Lagunitas Watershed and collect tissue samples from spawned carcasses.

When collecting information on spawning sites, the following protocol must be followed by all crew members. We seek to collect accurate field data while not disturbing the spawning activity of federally threatened coho salmon and steelhead trout. Crew members must practice the utmost care and respect when in the creek system. The majority of these creeks pass through the backyards of residents who share this habitat with the fish. The following protocol will explain the requirements for conducting this research.

In general, make sure to be quiet while on the creek. Loud noises can disturb the spawning fish and the residents who live along these creeks. Don't wear bright colors - you will be more discreet and less likely to disturb the fish and residents. We are actively seeking to attain Access Agreements from all creekside owners, and while we have secured a large number of agreements, there are still more to secure. Therefore, you must exhibit great care and courtesy to residents and, of course, the fish. If you do converse with a resident who seems amicable, ask them if they would be willing to sign an Access Agreement.

Surveys will be conducted between November and March. During the season, surveys will occur soon after a rain event as flows have decreased to a safe level. Since spawning salmonids continue to migrate upstream and likely spawn between rain

events (even when rain events are 3 weeks apart) crews will need to survey key creeks weekly especially during the peak of the spawning season (Late Nov. - January).

Before starting your survey you will need:

Flagging Tape

Data Sheets and Maps

Clipboard

Pens and Pencils

Sharpies (permanent markers)

Dry Cloth - to dry off tape so you can write on it

Waders, Boots, (in Bathroom of office)

Carcass Collection Kit (Clippers, labels and plastic bags)

Vest (optional but very useful - also in bathroom)

Camera and Video (highly encouraged - we have a video camera)

Polarized lenses (you can get a cheap pair at the pharmacy)

Garbage bag

Measuring tape

* Also you will need to check on the spawning survey update board as to what number you should start labelling the redds you discover for the creek you are surveying.

Procedure

- Crews will walk in stretches of creek as soon as water flow decreases to a safe and passable level and visibility is at least 0.5 m.
- Crews will remain on creek banks and will only walk in the creek bed itself when necessary to avoid any possibility of disturbing existing or potential spawning habitat. If there is a necessity to walk in the creek bed itself, observers will walk only in habitat not utilized by spawning salmonids.
- When a redd, digging activity in the creek bed or fish passing through the system are discovered, the following data will be recorded on the data sheet:
 - A) Species - please indicate if no fish are seen on a confirmed redd
 - B) Redd Number (Please note that if you discover digging activity but are not convinced that it is a redd DO NOT assign a number but make sure to flag the site and write "Digging" on the flag.)
 - C) Gender
 - D) Abundance
 - E) Condition
 - F) Size
 - G) Dimension of Redd, digging activity (length and width)
 - H) Location (Describe and indicate on map)
 - I) Time
- Flags will be placed at or near a redd in a conspicuous location. Flags should be placed as near to the redd as possible without disturbing the fish (if present). In some cases crews have placed the flag 3 meters downstream and noted this on the

flag. Create a flag that is approximately 2 feet with the yellow flagging tape provided and legibly write the following information on the flag:

- A) Redd number (the number will depend on what the last redd number assigned was)
- B) Location of redd in the creek bed (channel, left bank, right bank)
- C) Species, gender and number of associated fish
- D) Dimensions of the redd or digging activity (in meters)
- E) Date
- F) "SPAWN 488-0370 x102"
- G) Distance upstream or downstream from flag to redd.

* Flags should be placed in an easily visible location and tied to something permanent and sturdy and well above the high water level that is at eye level (e.g. tree branch, bush - blackberry bushes are not recommended).

- Upon completion of data collection, crews will climb up the bank to walk around spawning salmonids and their redd if possible without disturbing them. In cases, where it is prohibitive to walk upslope, crews will walk slowly and carefully around a redd.
- Upon discovery of a carcass you will need to collect a sample of tissue for genetic analysis. SPAWN is permitted to collect tissue through a permit with the National Marine Fisheries Service. Upon discovery of a carcass you will need to collect the following data and write it on the carcass collection label provided in the Kit:

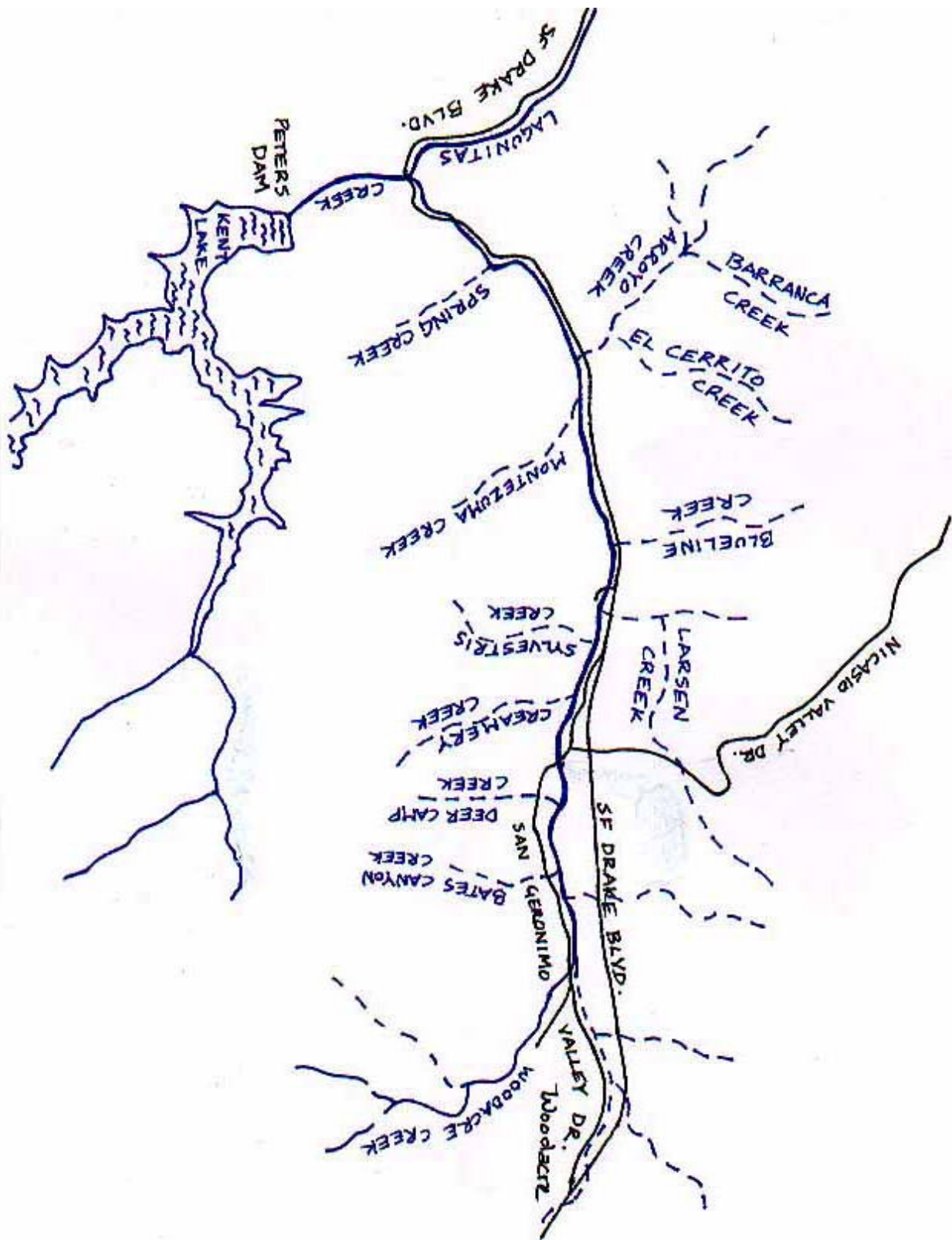
- A) Species
- B) Gender (if possible)
- C) Length
- D) Weight (use the scale provided)
- E) Creek Name
- F) Location on Creek
- G) Condition of Carcass (Fresh, Eaten, Decomposed)
- H) Date

When you have completed the collection of all data, you will clip a 1.5 inch x 1.5 inch section of tissue from the tail fin. Place the tissue and label in a zip-lock bag. Use one clean bag per sample. **When done cut the tail off of the carcass. This is very important because this will assure that another survey team does not sample the same carcass on a later survey.** See figure as to where to cut the tail off.

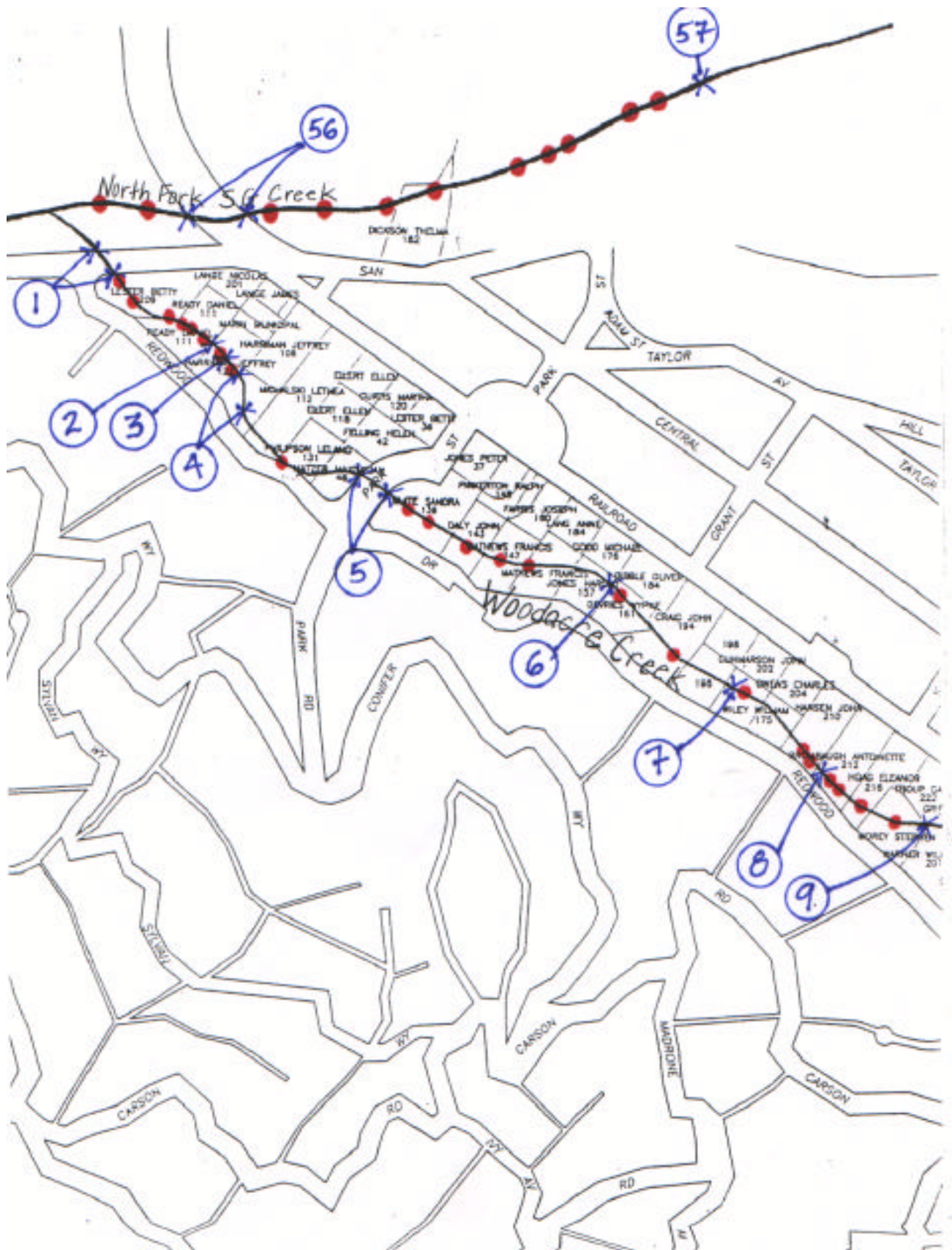
- At the end of the data sheet, please note any locations of relevant stream conditions such as log jams, bank failures, human made dams, and pollution.

Upon completing your survey, bring all of gear back to the office. Leave the data sheets on Reuven's Desk in the designated folder. Turn your waders inside to dry and hang in bathroom. Place boots in backroom (to the right of the bathroom) on plastic bag.

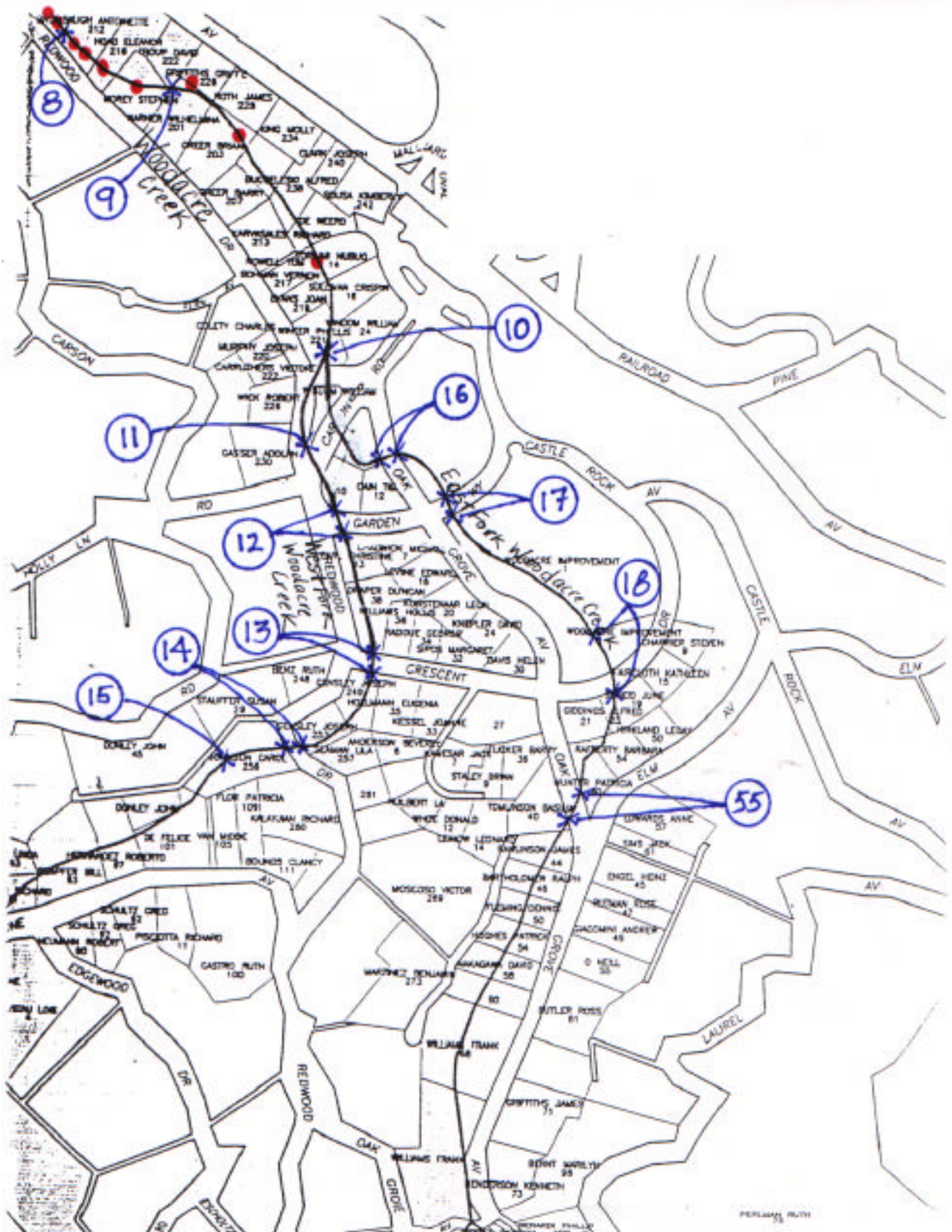
Thank you!!



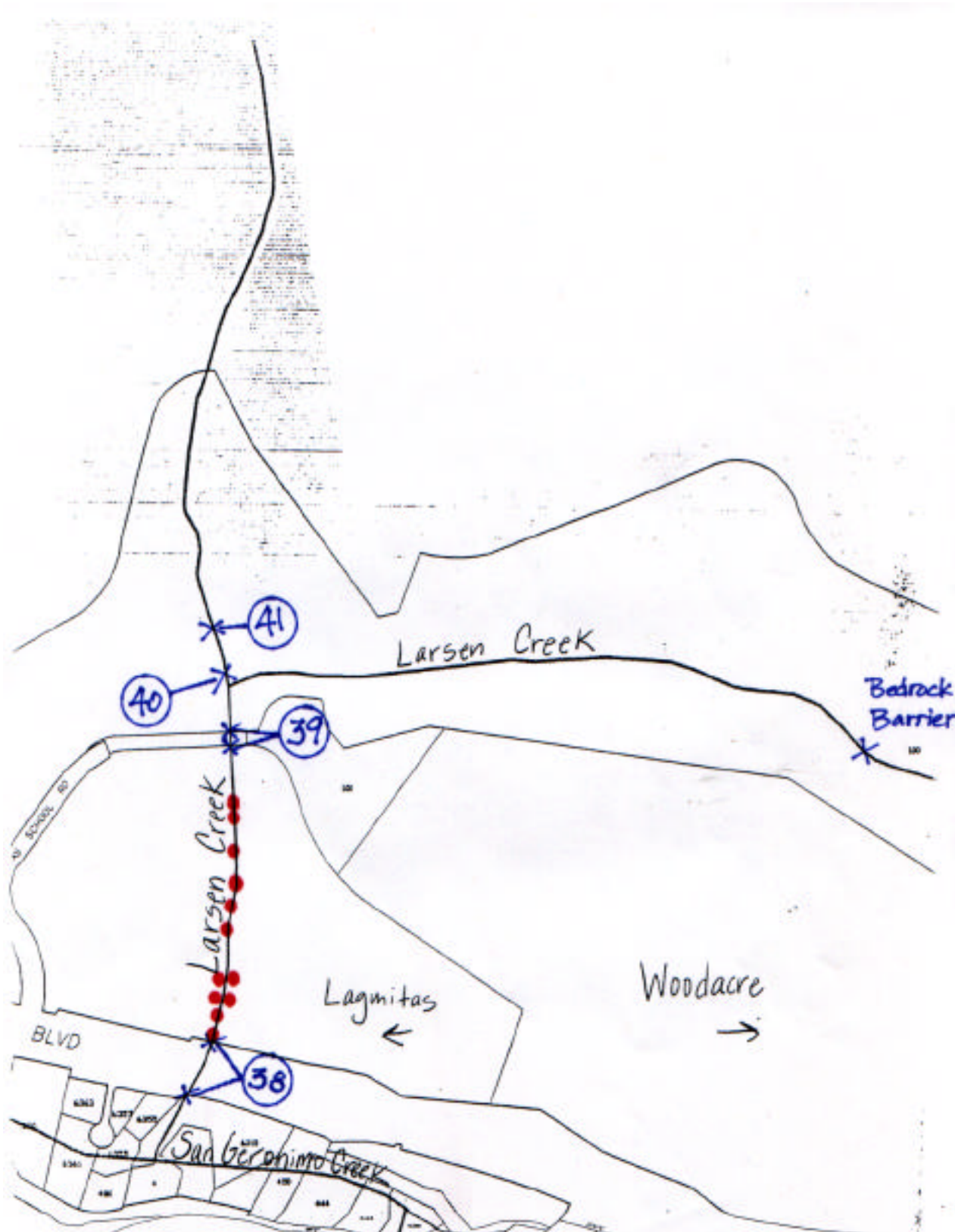
San Geronimo Creek and its tributaries.



Example of data collected on redds (dots) and migration barriers in 01/02. Lower Woodacre Creek and North Fork San Geronimo Creek map of



Example of data collected on redds (dots) and migration barriers in 01/02.
 Inner Woodacre Creek map of surveyed migration barriers and redds



Example of data collected on redds (dots) and migration barriers in 01/02.
Larsen Creek map of surveyed migration barriers and redds.