Standard Operation Procedure (SOP) #16

Snail (sisi vai) Surveys on Tutuila, American Samoa

Version 1.01 (June 29, 2021)

Change History

New Version #	Revision Date	Author	Changes Made	Reasons for Change	Previous Version #
1.01	6/29/2021	Amanda McCutcheon	Updated text regarding random number locations, added datasheet and field identification guide info	Updated text reflects current protocol, datasheets and field ID info were in appendices	1.0

Only changes in this specific SOP will be logged here. Version numbers increase incrementally by hundredths (e.g., version 1.01, version 1.02) for minor changes. Major revisions should be designated with the next whole number (e.g., version 2.0, 3.0, 4.0). Record the previous version number, date of revision, author of the revision, identify paragraphs and pages where changes are made, who approved the revision, and the reason for making the changes along with the new version number.

Purpose

This SOP describes setting up a sampling station (reach) and conducting a snail survey using a quadrat sampling design. This SOP will be used in American Samoa on the island of Tutuila at NPSA.

Overview of Procedure

Sampling moves from downstream to upstream. A total of ten quadrats per reach will be surveyed. Sampling requires one observer collecting snails, and a second observer measuring snails and recording data. The observers first count egg capsules in a ¼ m^2 area. The observers then proceed to collect and measure all snails, and count all post-larval snails called spat that measure less than 5 mm in the 1 m^2 quadrat. Datasheets are included below.

Conducting a Survey for Snails

Within each reach, ten random number pairs are generated using the Cartesian coordinate system. The Y coordinate represents the distance in meters upstream between 0 and 30. The X coordinate varies between 0 and 10 and represents distance across the stream as a percentage (1 = 10%, 2 = 20%, etc.). This is done to avoid over sampling the edges of the stream. Coordinates should be ordered (Y, X) starting with Y = 0 to facilitate movement upstream. When facing upstream, 0 begins on the left bank. For example, a quadrat location of (4, 2) would be paced four meters upstream and

20% across the stream from left bank. To count snails, each observer paces off the meters to the appropriate quadrat location based on the coordinate system and uses a thin one meter long metal wire to determine the exact boundaries of the 1 m^2 quadrat. The observer first counts all the eggs visible or under rocks in the bottom left ¼ of the plot frame. Wearing a face mask and snorkel, the observer collects all snails (visible or located between and beneath boulders) within the quadrat and measures them with calipers. As demonstrated in Figure SOP 16.1, shell lengths are measured to the nearest millimeter, as the longest distance between the apex (origin of whorl) and the anterior margin (Ford 1979). All loose gravel, cobble, and rocks are then removed and additional snails found within the quadrat are collected and measured. Snails are returned to the stream after being measured. Place the snail so that it can reattach to the substrate; don't just toss it back in or it may be eaten by a prawn. The number of post-larval snails [any snail $\leq$ 5 mm (Ford 1979; Hodges 1992)] within each quadrat is also recorded (counted).

Figure SOP 16.1. Measure the snail as the longest distance from the apex of the shell to the anterior margin (indicated by the pink line).

Species Identification Guide for American Samoa

The species identification guide to be used for monitoring in American Samoa will be Vargo (2009) (http://www.ctahr.hawaii.edu/adap/ASCC_LandGrant/Dr_Brooks/TechRepNo55.pdf, accessed 29 June 2021). This was not developed by the National Park Service; it is a technical report from the American Samoa Community College. This guide is intended to be used as a half page size booklet. The page numbering assumes a saddle stitch down the center fold.

Literature Cited

Vargo, D. 2009. Stream fauna of American Samoa; an illustrated guide to snails, shrimps, and fishes of American Samoa streams. Technical Report 55. P. 38. Community and Natural Resources, American Samoa Community College. Pago Pago, American Samoa.

Snail (sisi vai) Datasheet

Park:	**Stream:**	**Date:**
Reach:	**Observers:**	**Measure (name):**

Quadrat (y, x)	# eggs	# spat (<5mm)

Species	Corrosion (check if present)	Length (mm)	Quadrat (y, x)	Species	Corrosion (check if present)	Length (mm)	Quadrat (y,x)

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Snail (sisi vai) Datasheet

Species	Corrosion (check if present)	Length (mm)	Quadrat (y, x)	Species	Corrosion (check if present)	Length (mm)	Quadrat (y,x)