Supplemental 1. Field notes from environmental sampling.

Example #1. Excerpt from fieldwork in Azerbaijan during the 2013 field season.

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| Date: 7/14/2013 |
| New Collection location information:Near Xalec (sp?) in Limestone and sulphuric/ferrous hot spring deposit. Paleozoic limestone w/ geothermal spring protrusion (spring deposit younger). Below outcrop is quaternary alluvium. Iranian border is ~3 – 5km away. Area has mostly been disturbed by agriculture/irrigation canals, but in places the landscape has been reserved for sheep grazing. Semi-arid grassland with sparse trees, but view of Iranian border suggests trees are denser where sheep are not grazing.  |

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| Sample ID: SNA14-034 |
| Location/masl: N 38S 0494961; W 4374263. 809masl. |
| Material: Soil |
| Notes: Ferrous soil collected from geothermal deposit.  |

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| Sample ID: SNA14-035 |
| Location/masl: Same as above.  |
| Material: Soil |
| Notes: Sulphuric soil collected from same location as 34; yellow soil precedes (lower stratigraphically) than the ferrous soils.  |

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| Sample ID: SNA14-036 |
| Location/masl: Same as 034 |
| Material: Rabbit poop |
| Notes:  |

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| Sample ID: SNA14-037 |
| Location/masl: N 38S 0494845; W4374241. 803masl. |
| Material: Soil |
| Notes: Soil from alluvium tilled for irrigation canal. Near limestone and spring deposit. Very concerned about contamination from soviet industrial farming, but most of quaternary alluvium in this area has been utilized for such purposes. \*\*Contamination is an extreme concern\*\*  |

Example #2. Excerpt from fieldwork in Northern California, U.S.A. during the 2014 field season.

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| Date: 6/11/14 |
| New Collection location information:Camping location; HWY 20 west of Willits. N 39° 20’ 43.7”; W° 123 33’48.3”. 133masl. Camped @ edge of North Fork of Big River. Gray Squirrel in camp was warned of an unfortunate demise via the 9 kill traps set to the west of camp. Forest is a mix of deciduous and coniferous forests: Oak, fir, redwood, etc. Bedrock: Sandstone, shale, and minor conglomerate in coastal belt; Tertiary – Cretaceous (TK).  |

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| Sample ID: DGC14-019 |
| Location/masl: N 39° 20’ 43.5”; W 123° 33’ 48.4”. 133masl. |
| Material: American deer mouse (P*eromiscus maniculatus*) |
| Notes: Near camp. Snap trap.  |

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| Sample ID: DGC14-020 |
| Location/masl: N 39° 20’ 43.5”; W 123° 33’ 4804”. 133masl. |
| Material: Water |
| Notes: H2O from North Fork Big River off HWY 20. Originates from TK.  |

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| Sample ID: DGC14-022 |
| Location/masl: N 39° 21’ 03.4”; W° 123 33’ 46.7”. 133masl. |
| Material: Water |
| Notes: Water from unnamed seep/spring. ~200m north from camp site. GPS unable to locate satellites. Elevation ~ same as camp site. GPS worked. This was not running freely, but humidity is high here so probably not evaporated all that much, but could be suspect for del18O.  |

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| Sample ID: DGC14-023 |
| Location/masl: N 39° 21’ 02.8”; W 123° 33’ 48.2”. 133masl. |
| Material: Rock |
| Notes: Rock from marine sedimentary outcrop.  |