

**Appendix A, Table 1: Equipment in the Green Lab**

Item	Vendor	Catalogue Number/Model/Link	Number
<b>Basic Infrastructure</b>			
Autoclave	TUTTNAUER	2340M	1
Oven	Local		1
Microwave	Local		1
Lab Computer	Apple	Mac Mini	1
Refrigerator with small freezer	Local		1
Freezer	Local		1
Steam Water Distiller - 1 Gallon		Tuttnauer 9000	1
AmScope 100X-1000X Trinocular LED Infinity Plan Phase Contrast Microscope		AmScope T610-IPL-PH	1
UV Light	Amazon	<a href="#">Link</a>	1
Voltage Converter	Diamond series	DSR-5000	1
<b>Benchtop Equipment</b>			
Vortexer	FisherSci	Scientific industries Vortex-Genie 1 and 2	2
pH Meter	Amazon	<a href="#">Link</a>	1
Mini Microcentrifuge	MiniPCR	<a href="#">Link</a>	2
Magnetic bead separation rack 1.5ml tubes	Ebay	<a href="#">Link</a>	1
Magnetic bead separation rack 96-well plate	Ebay	<a href="#">Link</a>	1
Dry Bath Incubator	Used	Fisher Scientific 11-718 Dry Bath Incubator	1
Water Bath	VWR	<a href="#">Link</a>	1
8-well PCR machine	MiniPCR		5
16-well PCR machine	MiniOne		2
Bluegel Electrophoresis	MiniPCR	<a href="#">Link</a>	3

MiniOne Electrophoresis Package	MiniOne	<a href="#">Link</a>	2
Quantus Fluorometer	Quantus		1
Balance	Ebay	<a href="#">Link</a> Mettler AJ100	1
Microcentrifuge (24 well)	Hermle and Labnet spectrafuge 24D	<a href="#">Hermle</a> Z 180 M and Labnet	2
Cool Cube	Ebay	<a href="#">Link</a>	1
Vacuum Pump	Millipore Sigma	WP6111560	1
Large Centrifuge (Temp controlled)	Used	IEC Centra CL3	1
MinION Sequencer	Oxford Nanopore Technology	<a href="#">Link</a>	1
<b>Pipettes</b>			
Micropipette (20-200uL)	MiniPCR	<a href="#">Link</a> and <a href="#">Link</a>	6
Micropipette (100-1000uL)	MiniPCR	<a href="#">Link</a> and <a href="#">Link</a>	6
Micropipette (1-10uL)	MiniPCR	<a href="#">Link</a> and <a href="#">Link</a>	6
Multichannell pipette 20-200ul	Ebay	<a href="#">Link</a> and <a href="#">Link</a>	2
Pipette pumps (2ml, 5ml, 10ml)	Amazon		1 set

**Appendix A, Table 2: Recommended Items for a Pop-up Laboratory for Field Conservation Genomics Training Programs for 12 Participants**

Item	Vendor/ Model	Notes	Unit cost (USD)	Number of units	Total cost (USD)
<b>Basic Infrastructure***</b>					<b>\$1750</b>
Autoclave	<u>Eg:</u> TUTTNAUER 2340M	Alternatively, bring in pre-sterilised <u>plastics, pipette tips, tubes, and other plasties</u>	<u>\$500</u>	1	<u>\$500</u>
Oven	Local	This helps dry autoclaved materials	<u>\$200</u>	1	<u>\$200</u>
Microwave	Local	Primarily for agarose gel prep. Alternatively, purchase pre-made gels.	<u>\$50</u>	1	<u>\$50</u>
Refrigerator with small freezer	Local	Critical to store flowcells and other laboratory ingredients. However, flowcells can survive at <del>4p</del> -RTP for 1 month, and its possible to obtain PCR and library prep-supplies in lyophilised formats too.	<u>\$300</u>	1	<u>\$300</u>
Steam Water Distiller - 1 Gallon	Tuttnauer 9000	Alternatively, purchase clean water directly.	<u>\$500</u>	1	<u>\$500</u>
Voltage Converter	Diamond series DSR-5000	Critical if some equipment has different electrical requirements than the habitat country.	<u>\$200</u>	1	<u>\$200</u>
<b>Alternatives to Large Equipment</b>					<b>\$242</b>
<del>OR:-</del> Autoclaved plastics	<u>Assorted</u>	Pipette tips, tubes, and other plastics	\$200	1	\$200
Clean water	<u>G-Biosciences</u>	<u>500 mL bottle of moleculsr grade water</u>	<u>\$21</u>	<u>2</u>	<u>\$42</u>
<u>Pre-made gels</u>		<u>Cost varies depending on size, quantity and agarose content</u>	\$		
<b>Benchtop Equipment</b>					<b>\$7349</b>
Vortexer	<u>FisherSci-Vortex-GeniesBench mark Scientific Vornado Mini Vortexer</u>	<u>Generic vortexes also Relatively-cheaply available second-hand, but can be heavy-but heavy items.</u> Alternatively, can manually homoeogenise materials by <u>shaking-inverting</u> by hand.	<u>\$190</u>	2	<u>\$380</u>

Mini Microcentrifuge	<a href="#">MiniPCR/Mini One</a>	<a href="#">Alternatively, use the paperfuge; price listed for cheaper fixed speed from MiniPCR</a>	<a href="#">\$160</a>	2	<a href="#">\$320</a>
Magnetic bead separation rack 1.5ml tubes	Ebay	For bead-based purification	<a href="#">~\$30</a>	1	<a href="#">\$30</a>
<a href="#">Optional:</a> Incubator	Dry or Water bath, thermomixer	For short incubations, can use a PCR machine; Note: MiniPCRs cannot hold below 30C	<a href="#">N/A</a>	1	<a href="#">N/A</a>
PCR Machines	<a href="#">MiniPCR/MiniOne</a>	8- or 16-well devices; MiniPCR doesn't have peltier technology, making it slower to switch temperatures, but MiniOne devices are possibly less rugged for including it:  <a href="#">Option 1 (no Peltier): 2 x Mini-16 (\$795)+ 1 Mini 8 (650) (40 wells)</a>  <a href="#">Option 2 (Peltier): 3 x MiniOne (48 wells) (\$799) + 3 x Kindle controllers (\$99)</a>	<a href="#">\$2240</a>	<a href="#">5</a>  <a href="#">1</a>	<a href="#">\$2240</a>  <a href="#">\$2694</a>
Electrophoresis Machines + Imagers	<a href="#">MiniOne</a>	Image clarity unmatched, portable and rugged devices, use agarose gels.	<a href="#">\$279</a>	3	<a href="#">\$837</a>
Fluorometer	Quantus	This is expensive but necessary to normalise before pooling. The one area in which a low-cost alternative doesn't exist to date. <a href="#">Includes 500 assays, some tubes</a>	<a href="#">\$1872</a>	1	<a href="#">\$1872</a>
Cool Cube	<a href="#">Ebay Assorted vendors, check ebay also</a>	Alternatively, freeze water in the lid of a PCR tube tray for a makeshift cool cube	<a href="#">\$110</a>	2	<a href="#">\$220</a>
MinION Sequencer	Oxford Nanopore Technology	Comes with 2 flowcells in a starterpack, or 12 Flongle flowcells <a href="#">(\$1800 extra)</a> . Check wait times for Flongle production.	<a href="#">\$1000</a>	1	<a href="#">\$1000</a>
Pipettes	MiniOne/MiniPCR	Affordable and accurate devices; alternatively, use fixed volume pipettes for an even cheaper alternative; <a href="#">MiniOne set of 3 (\$195); MiniPCR (\$150)</a>	<a href="#">\$150</a>	3	<a href="#">\$450</a>
<a href="#">Total Overall Cost</a>					<a href="#">\$7591</a>

\*\*\* Basic infrastructure is highly cost variable based on where the program takes place. Also, much of it could be replaced with single-use consumables. Thus, we exclude these costs from the overall total. Note: Where possible, cheaper alternatives are included. Prices are based on an estimated level of convenience for 12 participants to work together. If class-time is longer, fewer devices could be shared. It is also possible to package certain items together for further discounts. For eg: gel electrophoresis devices + PCR machines.

**Appendix A, Table 3: Ingredients Lists for Training Program for 12 Participants Using DNA Barcoding as a Case Study.**

Item	Vendor	Notes	Unit cost (USD)	Number	Total cost (USD)
Taq polymerase (dNTPs and Magnesium included)	Promega - M7406, 100u, GoTaq® G2 Hot Start Polymerase	Cheaper Taqs available from MiniOne/MiniPCR but quality less reliable. For simpler teaching use master mixes although we have found that fundamentals are better understood when each PCR ingredient is used separately.	\$60	2	\$120
Quantus Fluorometer Assays	Promega	One set is more than sufficient for one field course (~500 assays), <u>included in starter pack</u>	N/A	1	N/A
PCR strip tubes	Any	Avoid plates since PCR machines are small. <u>Unit Price for 100, 0.2uL tubes</u>	\$12	<del>2505</del>	\$60
1.5mL Microcentrifuge Tubes	Any	Simplest for a variety of purposes. <u>Unit price per 500</u>	\$27	<del>10002</del>	\$54
Barcoding Kit	<u>Oxford Nanopore Technology</u>	Available in 12 and 96 barcode formats. <u>price here for 12.</u> (Alternatively, use custom barcodes <del>for as</del> a cheaper alternative)	\$288	1	\$288
Gelgreen	<u>MiniOne/MiniPCR</u>	Product can be stored at rtp or refrigerated; a tube <u>of 50uL</u> more than enough for one field course.	\$20	1	\$20
Gel loading dye	<u>MiniOne/MiniPCR</u>	One tube sufficient for one course	\$10	1	\$10
Agarose	Any	<u>MiniOne/MiniPCR</u> also sell loose agarose, <u>pre-measured tablets, or pre-mixed gel cups;</u>	\$40	1	\$40

		<u>unit price for 20g or pre-cast gels:</u>			
TBE Buffer 10X	<a href="#">MiniOne.</a> <a href="#">MiniPCRAny</a>	Best to purchase this pre-mixed at 10X concentration; <a href="#">500mL</a>	<a href="#">\$18</a>	1	<a href="#">\$18</a>
Primers	<a href="#">IDT or other</a>	Depending on markets required, purchase from vendors in bulk, lyophilised.	<a href="#">\$20</a>	<u>2</u>	<a href="#">\$40</a>
Gel loading <a href="#">and micropipetting</a> practice kit	<a href="#">MiniOne/</a> <a href="#">MiniPCR</a>	Easy to use, <a href="#">reusable</a> and affordable kits that help with pipette-use training and refreshers; one kit = 32 uses.	<a href="#">\$54</a>	1	<a href="#">\$54</a>
Spin-columns	Epoch LifeSciences, <a href="#">link</a>	Cheap and good quality spin-columns of different sizes for DNA extraction and purification; <a href="#">250 spin columns</a>	<a href="#">\$95</a>	1	<a href="#">\$95</a>
<a href="#">Total overall cost</a>					<a href="#">\$799</a>