Reference

Knots

Knots are essential for camping and life in the field. This section contains illustrations showing how to tie thirteen useful knots. Below are descriptions of these knots, as well as suggestions regarding when each one might be most useful.

Knot terminology:

Knot – ties a rope to itself.

Hitch – ties a rope to another object, such as a post, stake, or eye-ring grommet.

Bend – Ties two different pieces of rope together.

Bight – A curved or slack section of rope between two ends.

Useful Knots

Figure 8 on a Bight – Forms a secure, non-slip loop at the end of the rope. Use the tail end to make a stopper knot. Difficult to untie after a heavy load.

Examples of when to use in the field:

- Climbing and mountaineering
- Creating a loop for a carabiner to attach sleds to snowmobiles

Bowline – A loop knot that creates a closed, fixed circle at the end of a line. This is a secure knot that doesn't slip when loaded and is easy to untie. (Learn to tie it with one hand for fun or rescue situations). Make a small loop, then the rabbit comes out of the hole, around the tree, and back down the hole. Use a stopper knot.

Examples of when to use in the field:

- Tying around a tent loop to use as a guyline
- Tying down cargo

Clove Hitch (Double Hitch) – Great all-purpose hitch to secure a rope when pulled from a post in two directions. It consists of two half hitches around an object then passes under itself, making it a good binding knot. It's easy to untie, but needs tension or it will come undone. It can be tied from the middle of the rope.

Examples of when to use in the field:

- Starting or ending lashing
- Attaching a rope to a carabiner, eye ring grommet, stake, or post

Round Turn and Two Half Hitches – A hitch ties a rope to an object, such as a post or ring. This is a great all-purpose hitch to

secure a rope when pulled from a post in one direction. It is strong, doesn't slip, and is easy to untie.

Examples of when to use in the field:

- Lowering survival bags from deck of ship to small boat below
- Securing survival bags to a bamboo or metal stake so they don't blow away

Sheepshank Knot – A shank knot is used to shorten a rope or take up slack. It requires tension.

Example of when to use in the field:

- When you need a short length of rope, but don't want to cut the line

Sheet Bend – A bend knot that joins together two ropes of different sizes or thicknesses. Use the thicker or more slippery rope as the bight, with the thinner rope going around it.

Examples of when to use in the field:

- Lengthening a guy line
- Fixing a boot lace with p-cord or string
- Using scraps of line to make one of useful length

Taut Line Hitch – An adjustable loop knot that can slide back and forth along a line. The loop easily adjusts under tension, but remains secure once the knot is pulled tight. It is secure, as long as there is tension. (Note: The taut line hitch is a combination of the clove hitch and the round turn hitch.)

Examples of when to use in the field:

- Replacing a tent guy line
- Adjusting the tension on a guy line to achieve optional line tension

Square Knot/Reef Knot – A binding knot used to tie two ends of a single rope together: right over left, left over right.

Examples of when to use in the field:

- Lengthening a rope by tying two lines together
- Tying up a bundle of bamboo poles
- Tying bandages

Prussik – Friction hitch used to attach a loop of 5mm cord around a rope.

Examples of when to use in the field:

- Climbing and mountaineering
- Tying items to a guy line so they don't blow away

Trucker's Hitch – Stretches a rope between two anchor points. It's essentially a block and tackle knot that uses mechanical advantage and friction. Form the loop with the slack part of the line so it does not tension on itself and can quickly be undone and re-tensioned. This knot can be tightened with more force than the Taut Line.

Examples of when to use in the field:

- Tensioning guy lines between deadmen and the tent
- Tying and secure sled loads

Water Knot – Joins two lengths of webbing or straps.

Examples of when to use in the field:

- Lengthening two pieces of webbing
- Joining two cargo or cam straps together

Double Fisherman's Stopper Knot – Joins two lengths of rope and is very easy to tie. (It is two overhand knots.)

Examples of when to use in the field:

- Making slings in climbing
- Making adjustable necklaces and bracelets
- Camping crafts on bad weather days

Alpine Butterfly – Forms a fixed loop in the middle of a rope without needing access to either end. Shortens a long climbing rope, or creates a bight in the middle of a rope.

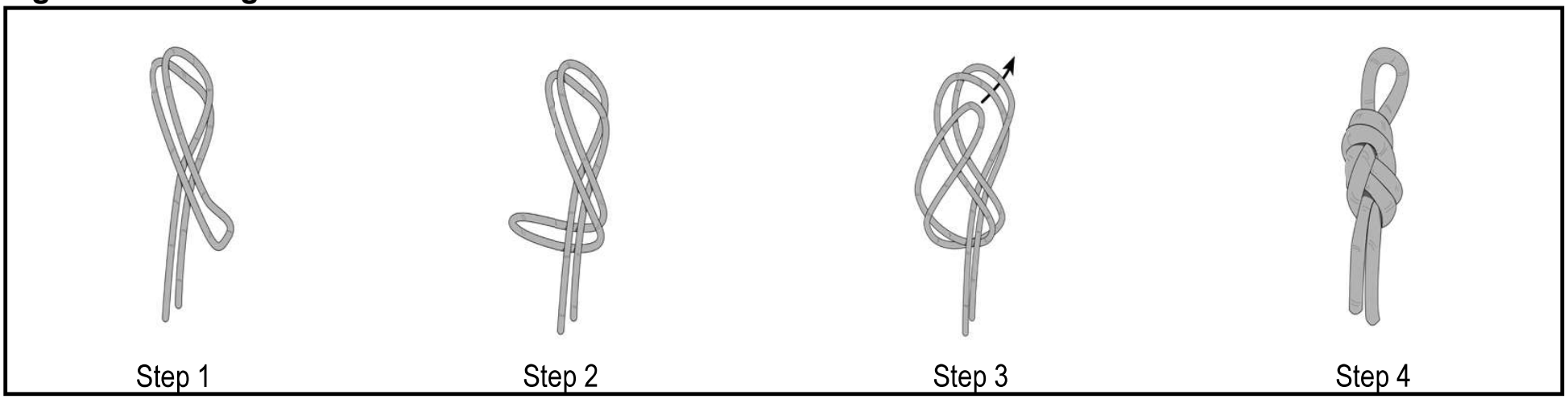
Example of when to use in the field:

- Connecting members of a roped-up mountaineering team

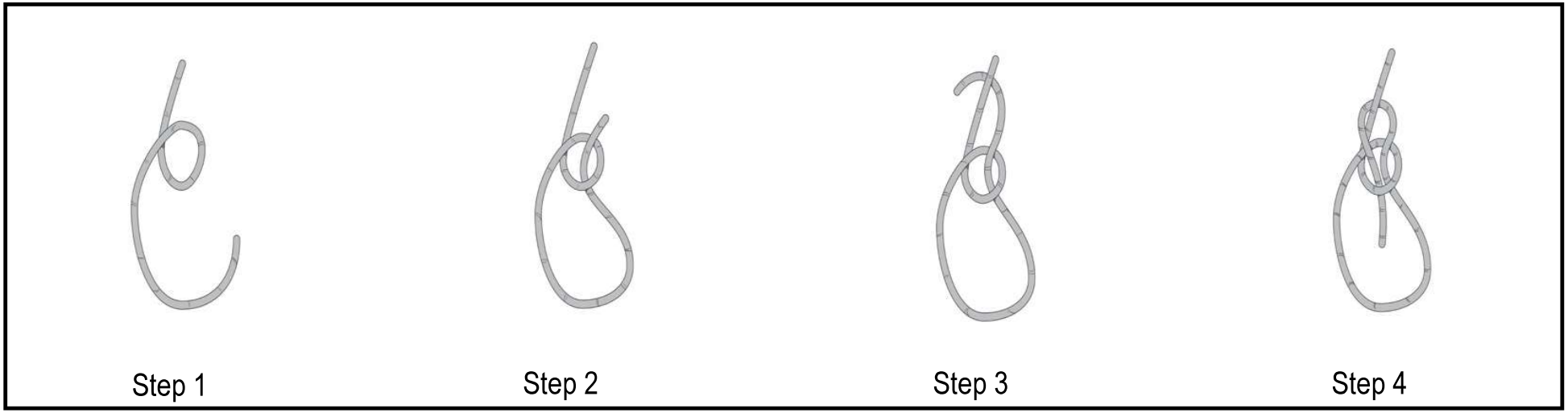
See the folowing pages for descriptive illustrations.

Knot Illustrations

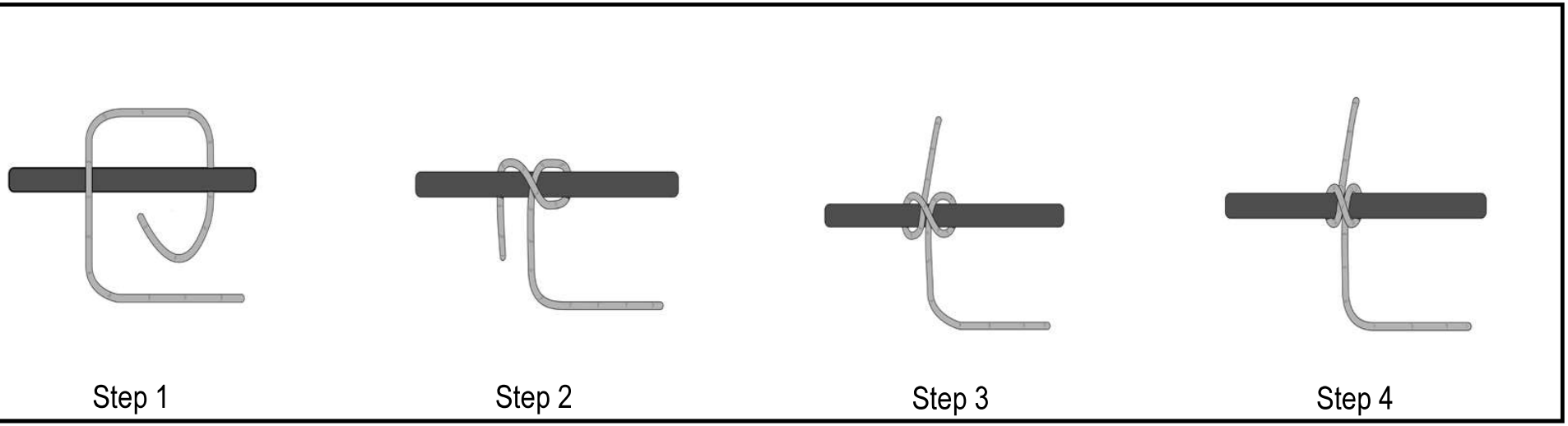
Figure 8 on a Bight



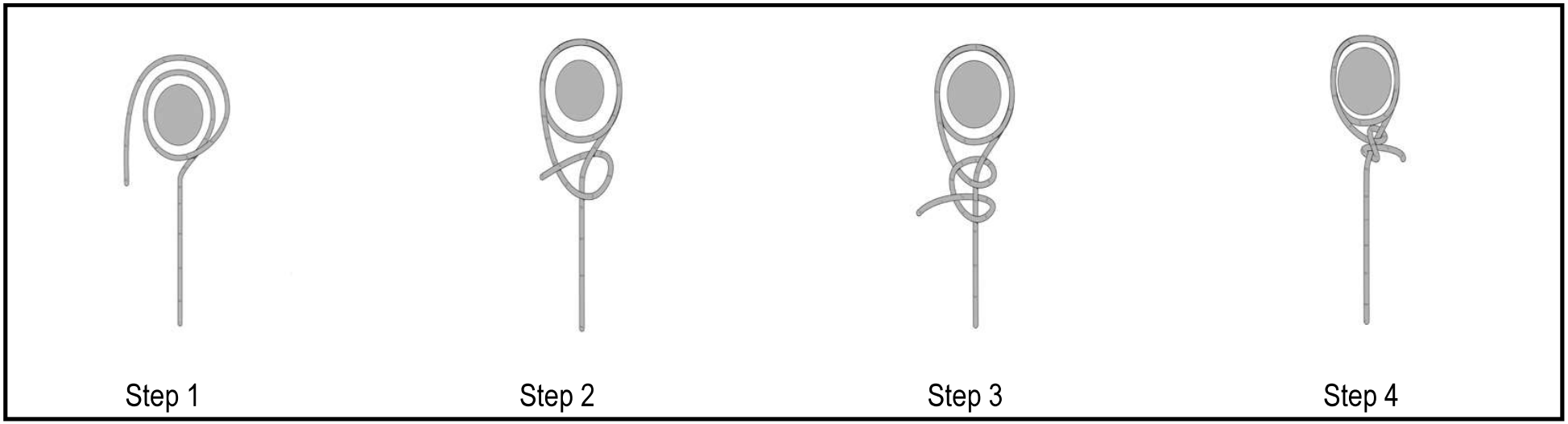
Bowline



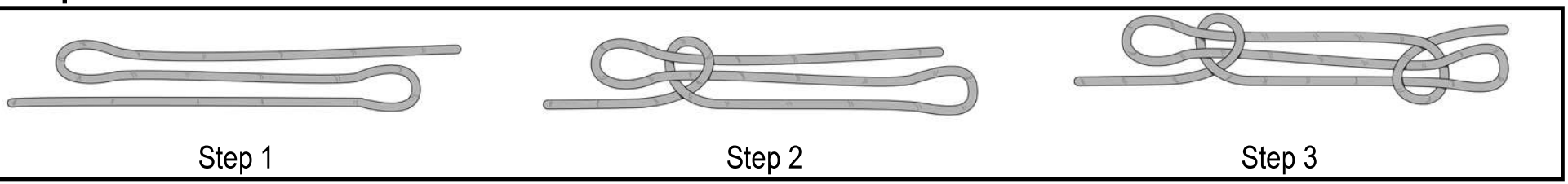
Clove Hitch (Double Hitch)



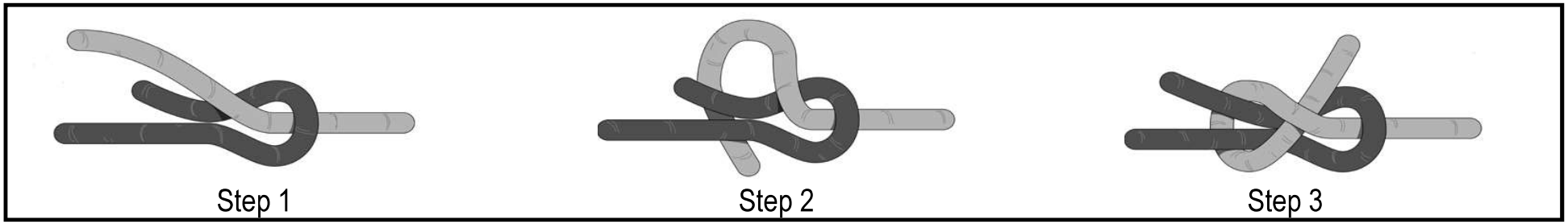
Round Turn and Two Half Hitches



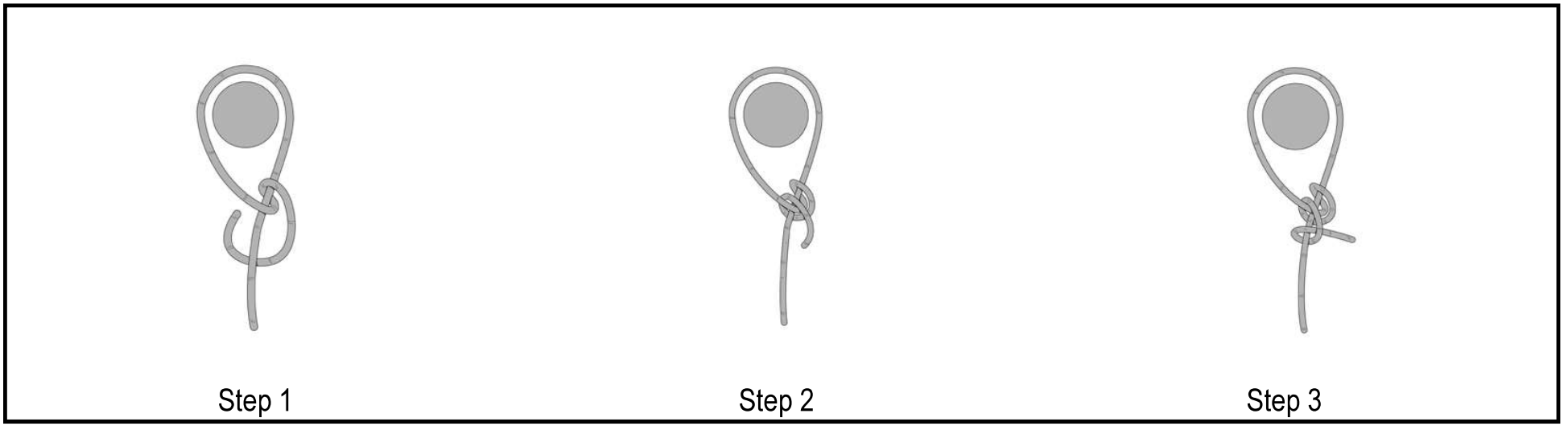
Sheepshank Knot



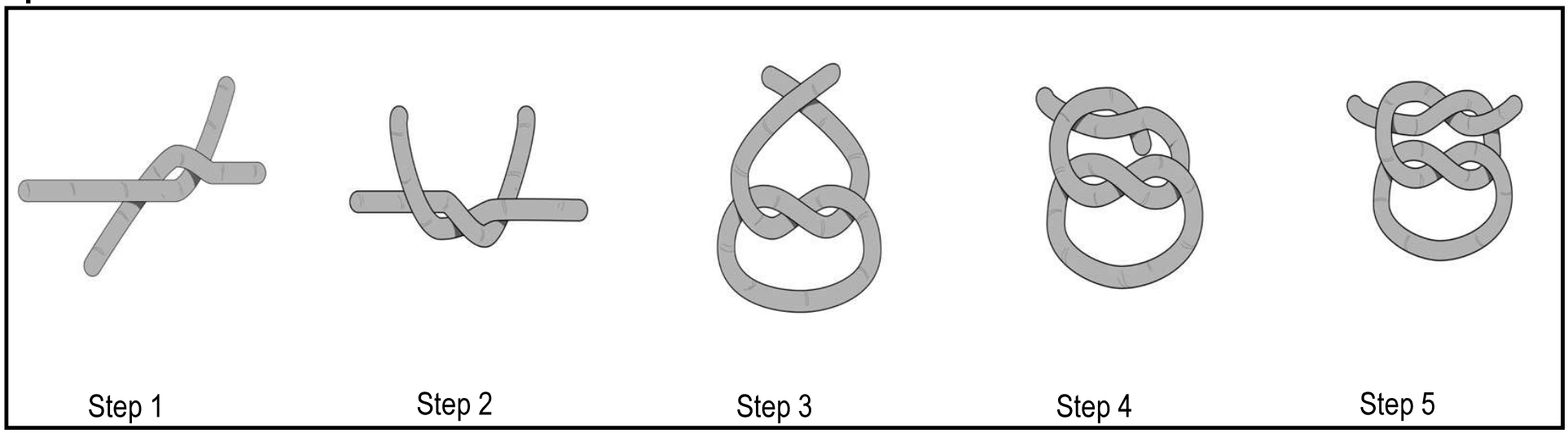
Sheetbend



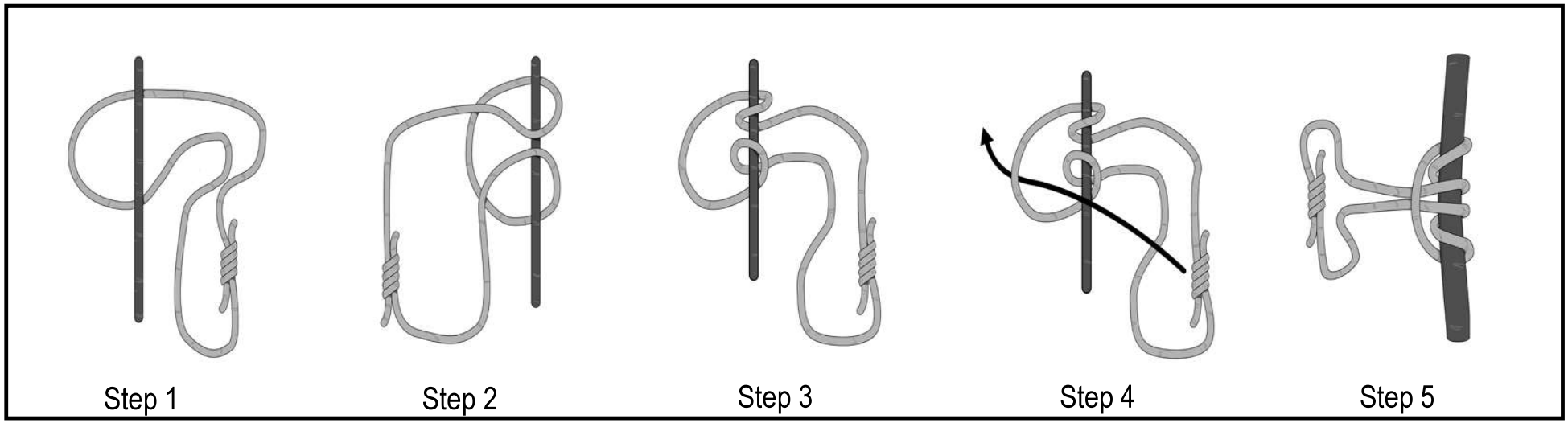
Taut Line Hitch



Square Knot or Reef Knot



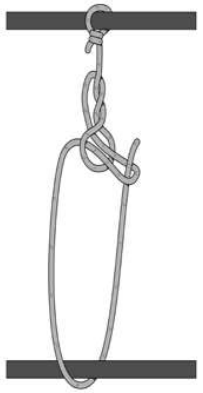
Prussik



Trucker's Hitch

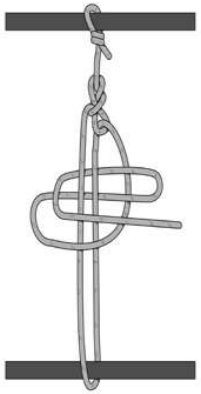
Step 1

Step 2

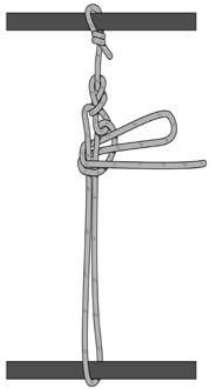


Step 3

Step 4

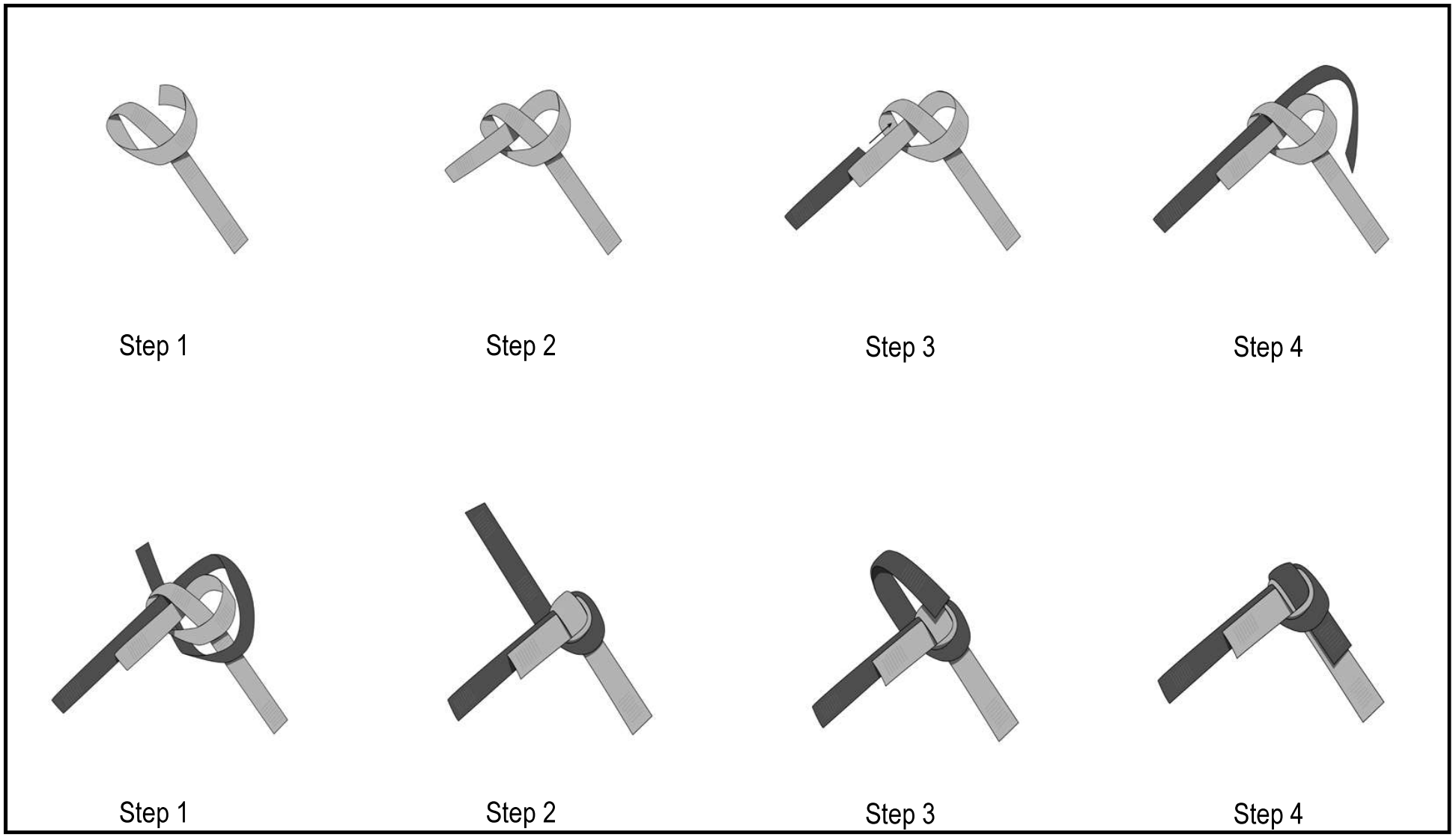


Step 5

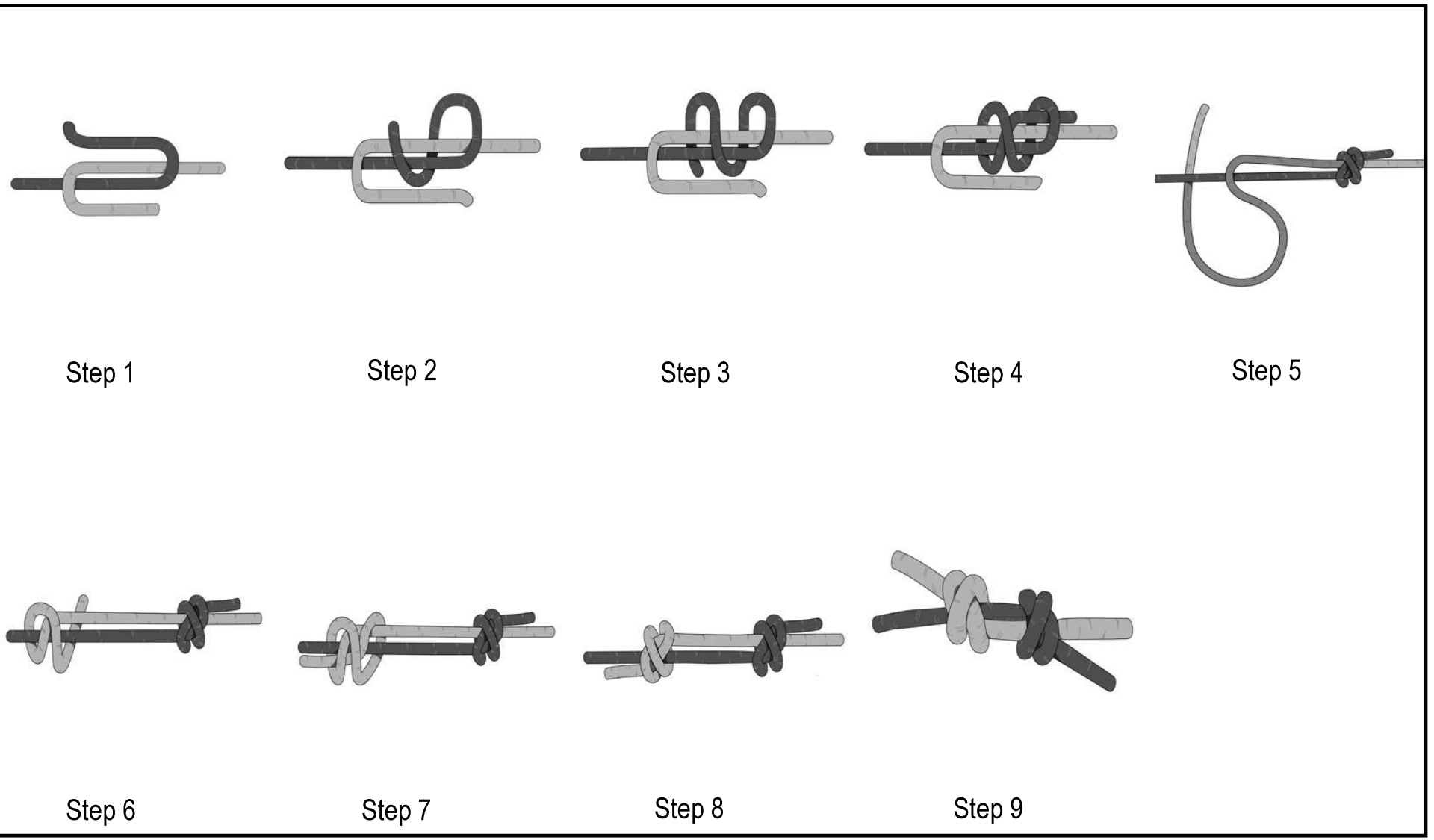


Step 6

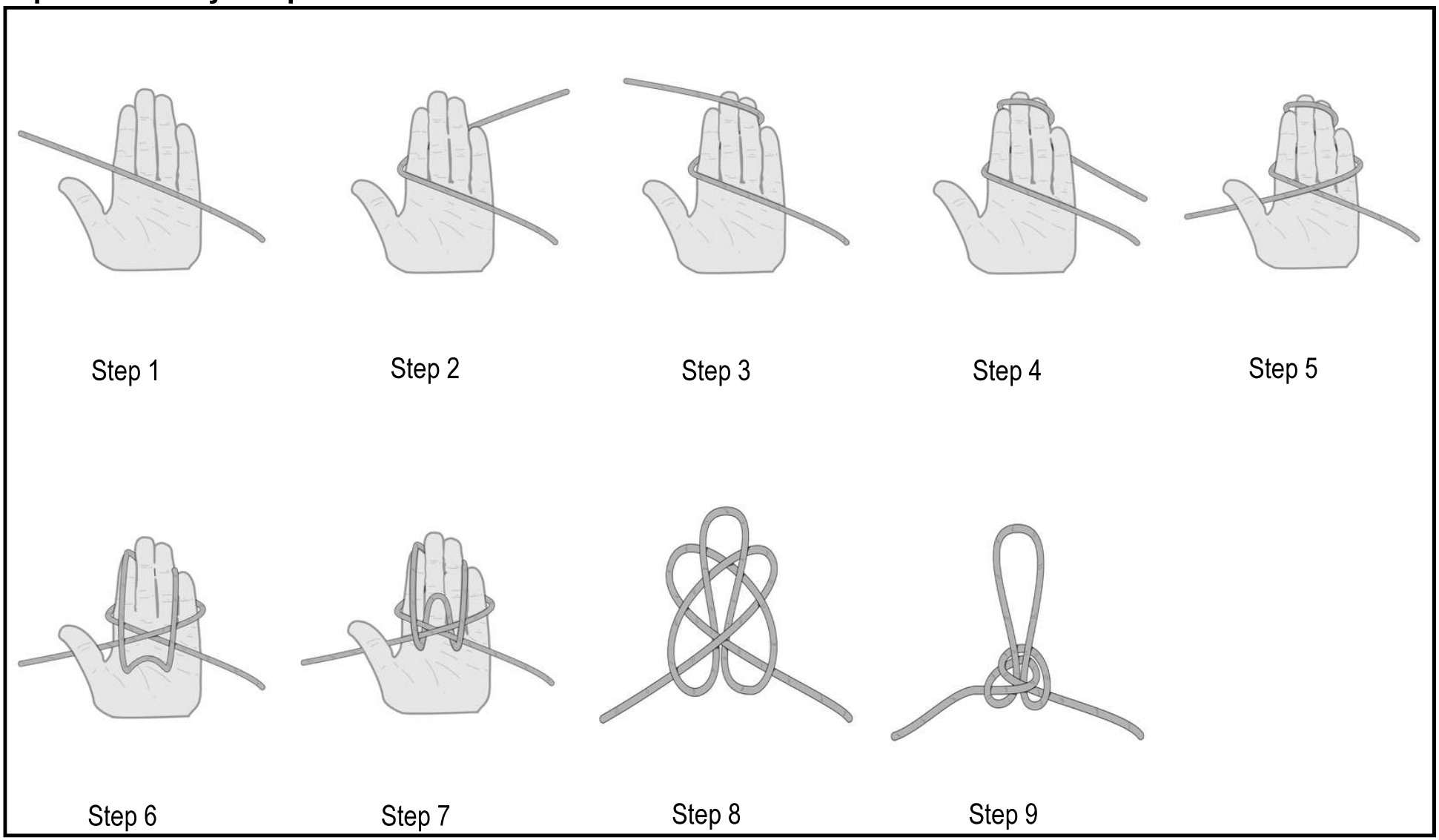
Water Knot



Double Fisherman's Stopper



Alpine Butterfly Loop



Wind Chill Chart

REFERENCE

Fuel	Tank Size		Gross Weight	Tare Weight	Cube
	55-Gallon		400lbs	50 lbs	16
	5-Gallon		45 lbs	10 lbs	2
Propane	**Tank Size**	**Net Quan-tity**	**Gross Weight**	**Tare Weight**	**Cube**
***Supply fills propane tanks to approximately 75% of capacity*	100-pound	45kg	155 lbs	55 lbs	16
	40-pound	18kg	69 lbs	29 lbs	4
	20-pound	9kg	37 lbs	17 lbs	3
	10-pound	5kg	23 lbs	13 lbs	2
Mechanical Equipment Center	**WEIGHT (lbs)**	**CUBE (ft^3)**	**Dimensions (LxWxH in.)**	**Fuel**	**Tank Size**
SNOW MOBILES					
Tundra snowmobile	400	123	115x37x50	Mogas/Oil	6.9 gallons
Skandic WT (1995, 96, 99)	575	136	119x41x48	Mogas/Oil	11 gallons
Skandic SWT 503 snowmobile	625	165	119x42x56	Mogas/Oil	11 gallons
Skandic SWT 550 snowmobile	675	160	124x43x52	Mogas/Oil	11 gallons
2009/11 Skandic WT 550 snowmobile	600	165		Mogas/Oil	12 gallon
Alpine I	685	118	114x35x51	Mogas/Oil	6.0 gallons
GENERATORS, BOXES					
1.0 Kw Honda generator	30	1.5	17x9x15	Mogas	0.61 gallons
1.8 Kw Honda generator	110	3.5	20x17x17	Mogas	2.9 gallons
Field Box; 1.8 Kw gen	65	9	27x22.5x24.5	n/a	No tank

GENERATORS, BOXES (continued)					
2.0 Kw Honda generator	50	2	18x18x10	Mogas	.96 gallons
2.5 Kw Honda generator	110	3	20x16x16	Mogas	2.9 gallons
3 Kw honda generator	68	3	17.3x15.7x18.9	Mogas	2.7 gallons
3.5 Kw Honda generator	145	5	24x20x19	Mogas	4.5 gallons
Field Box; 3.5/5.0 Kw gen	85	12	30x25x27.5	n/a	No tank
5.0 Kw Honda generator	180	6	26x20x20	Mogas	4.5 gallons
HEATERS					
Herman Nelson BT400-10 w/ cover	320	14	56x20x22	Mogas	16 gallons
Herman Nelson BT400-45 OCH w/ cover	350	34	54x23x48	Mogas	16 gallons
Herman Nelson BT400-45 OCH w/ cover and trailer	526	120	81x44x58	Mogas	16 gallons
Hermie Prime Mover, Honda GX 160, goes with -45	44	3.5	19x15x19	Mogas	No tank
Hermie Prime Mover, AU7-B-344, with -10	60	2.5	16x16 diam.	Mogas	No tank
Hermie Prime Mover AU7-B-344, with -10 w/ box	100	5	20x20x20	Mogas	No tank
Arcotherm (Field unit with skiis)	395	115		JP8	
TRIWALL					
Triwall	20	3.5	20X20X16		
Triwall	35	31	41X36		
Triwall, large (44 cube)	42	44		None	No tank
Triwall, small (18 cube)	26	18		None	No tank

Conversion Table

	To Convert	To	Multiply By
Weight	Pounds	Kilograms	0.4536
	Kilograms	Pounds	2.2046
Distance	Inches	Millimeters	25.4
	Millimeters	Inches	0.0394
	Inches	Centimeters	2.54
	Centimeters	Inches	0.3937
	Meters	Feet	3.2808
	Feet	Meters	0.3048
	Meters	Yards	1.0936
	Yards	Meters	0.9144
	Kilometers	Miles	0.6214
	Miles	Kilometers	1.609
	Kilometers	Nautical Miles	0.5396
	Nautical Miles	Kilometers	1.853
	Statute Miles	Kilometers	1.6093
	Kilometers	Statute Miles	0.6213
Density	Cubic Feet	Cubic Meters	0.0283
	Cubic Meters	Cubic Feet	35.3145
	Cubic Yards	Cubic Meters	0.7646
	Cubic Meters	Cubic Yard	1.3079
Volume	Liters	Gallons	0.2642
	Gallons	Liters	3.7854
	Liters	Pint (liquid)	2.1134
	Pint (liquid)	Liters	0.4732

NZDT - Zulu Time Conversion

NZDT	Zulu	NZDT	Zulu
0:00	11:00	13:00	0:00
0:30	11:30	13:30	0:30
1:00	12:00	14:00	1:00
1:30	12:30	14:30	1:30
2:00	13:00	15:00	2:00
2:30	13:30	15:30	2:30
3:00	14:00	16:00	3:00
3:30	14:30	16:30	3:30
4:00	15:00	17:00	4:00
4:30	15:30	17:30	4:30
5:00	16:00	18:00	5:00
5:30	16:30	18:30	5:30
6:00	17:00	19:00	6:00
6:30	17:30	19:30	6:30
7:00	18:00	20:00	7:00
7:30	18:30	20:30	7:30
8:00	19:00	21:00	8:00
8:30	19:30	21:30	8:30
9:00	20:00	22:00	9:00
9:30	20:30	22:30	9:30
10:00	21:00	23:00	10:00
10:30	21:30	23:30	10:30
11:00	22:00	11:30	22:30
12:00	23:00		
12:30	23:30		

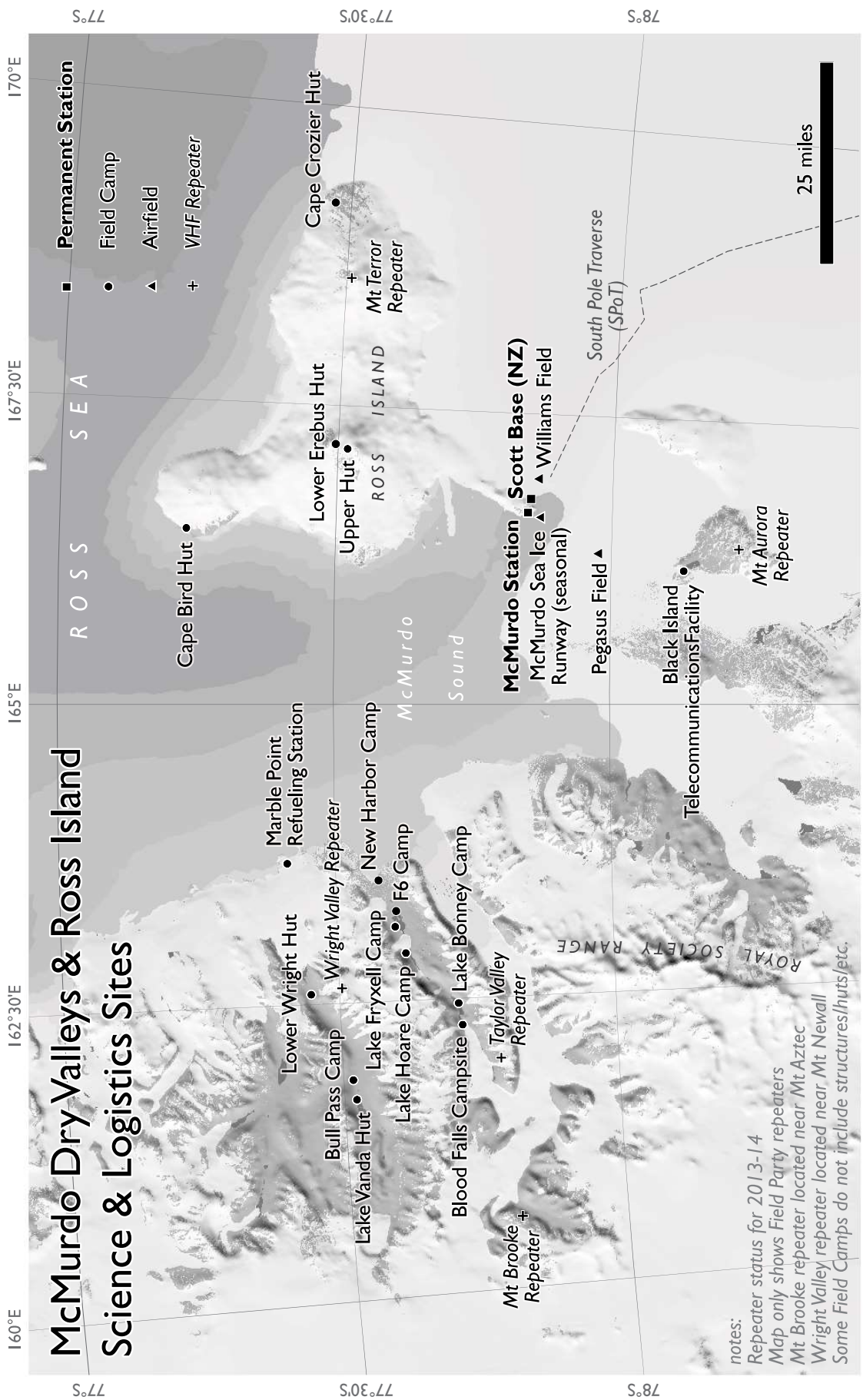
Weather observations are reported in Zulu Time. For example, the 8:00 am weather observation from a McMurdo-based field camp operating on New Zealand time would call in the 1900 Zulu observation.

New Zealand Daylight Savings (NZDT) time is generally September to April. NZDT to Zulu is GMT+13 hours.

Temperature Conversions

Fahrenheit	Celsius
40	4.44
35	1.67
32	0
30	-1.11
25	-3.88
20	-6.66
15	-9.44
10	-12.22
5	-15
0	-17.77
-5	-20.55
-10	-23.33
-15	-26.11
-20	-28.88
-25	-31.66
-30	-34.44
-35	-37.22
-40	-40.00
Fahrenheit to Celsius: (F degree-32) x (5/9)	
Celsius to Fahrenheit: (1.8 X C degree)+32	

Dry Valley and Ross Island Science Logistics

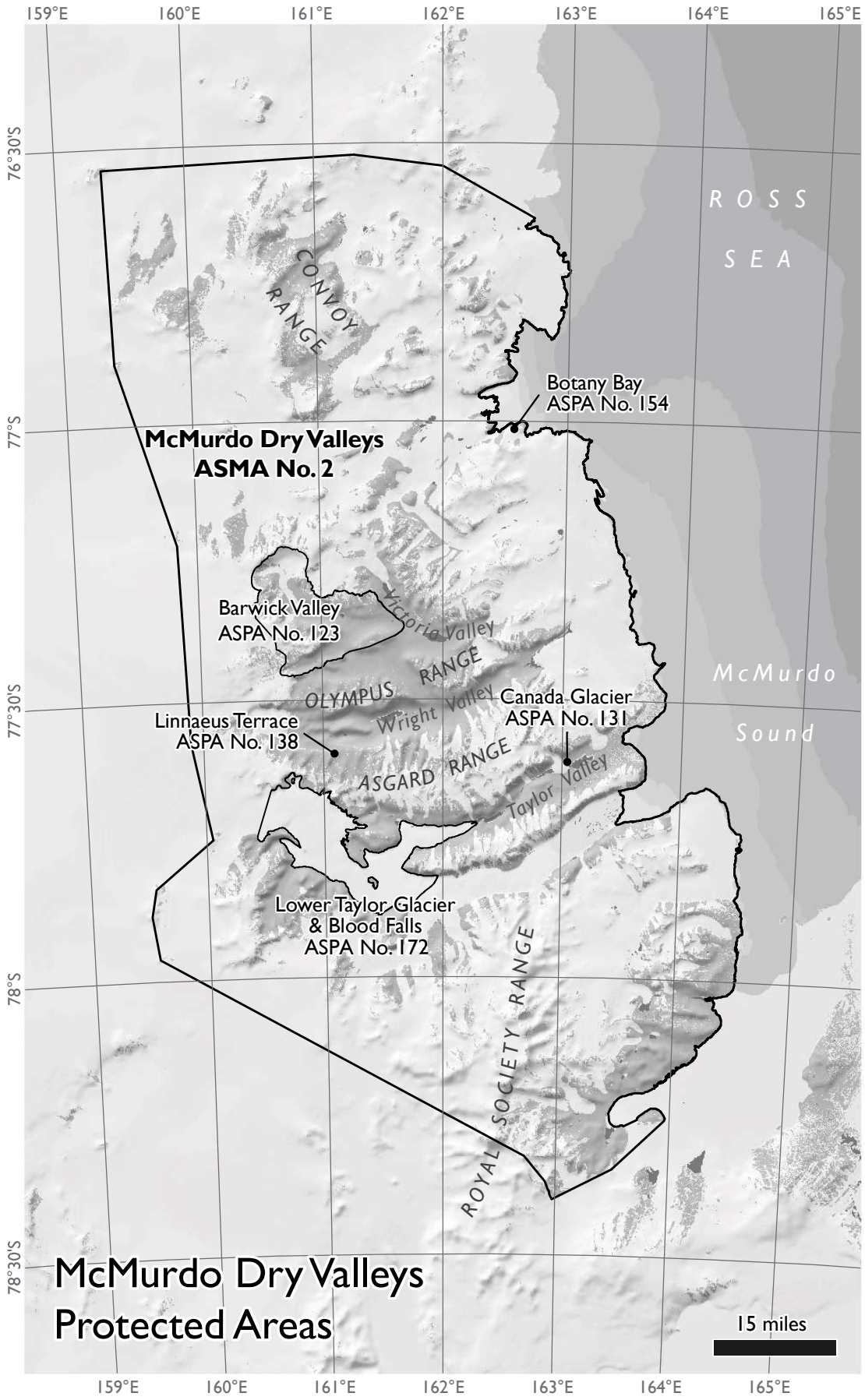


REFERENCE

Taylor Valley camps

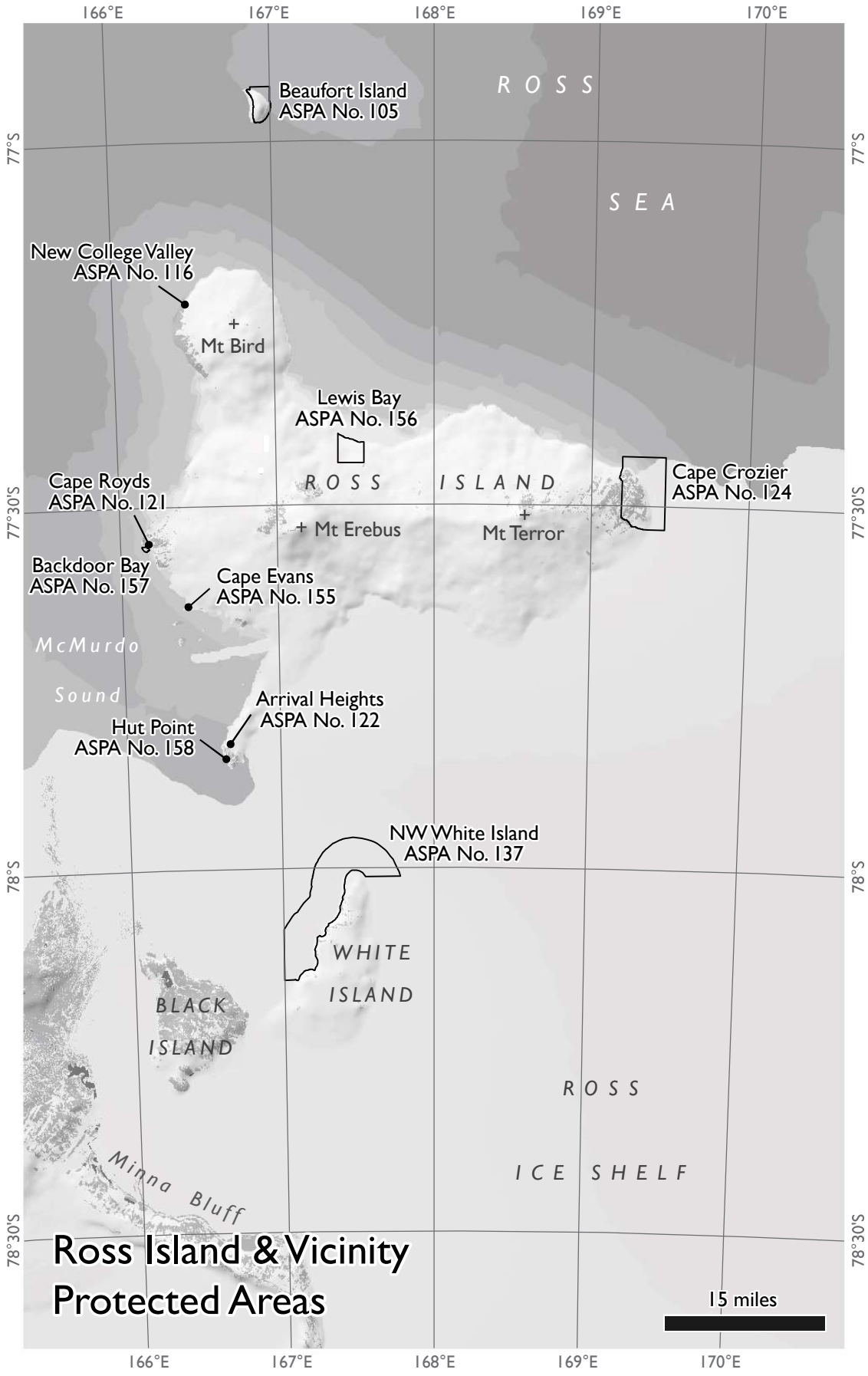
REFERENCE

Dry Valley ASMA



REFERENCE

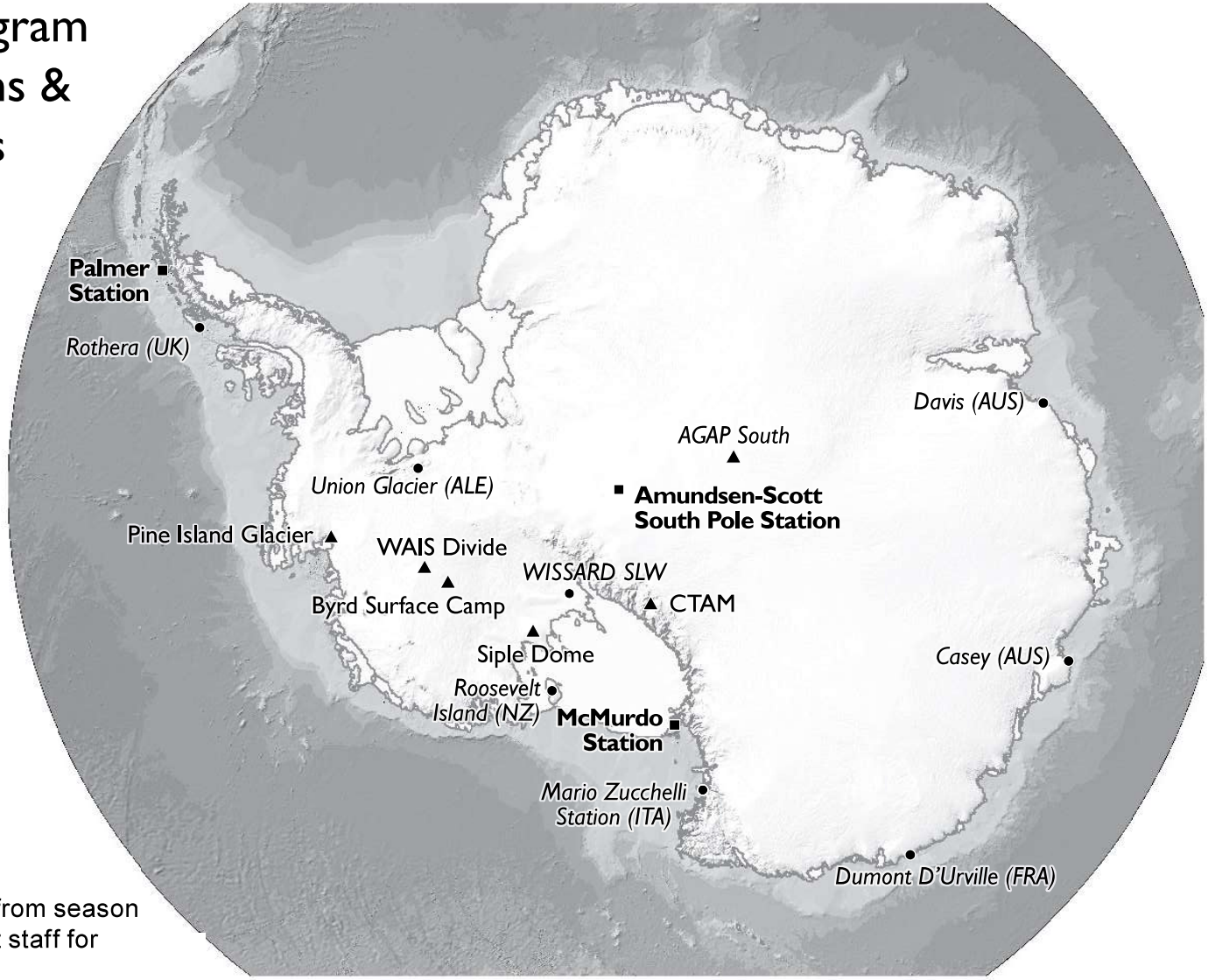
Ross Island ASMAs



REFERENCE

U.S. Antarctic Program Permanent Stations & Deep Field Camps

- ■ **Permanent U.S. Station**
- ▲ Deep Field Camp
- ● *Other USAP or International Site*



Note: Deep-field camps change from season to season. Contact Field Support staff for current locations.