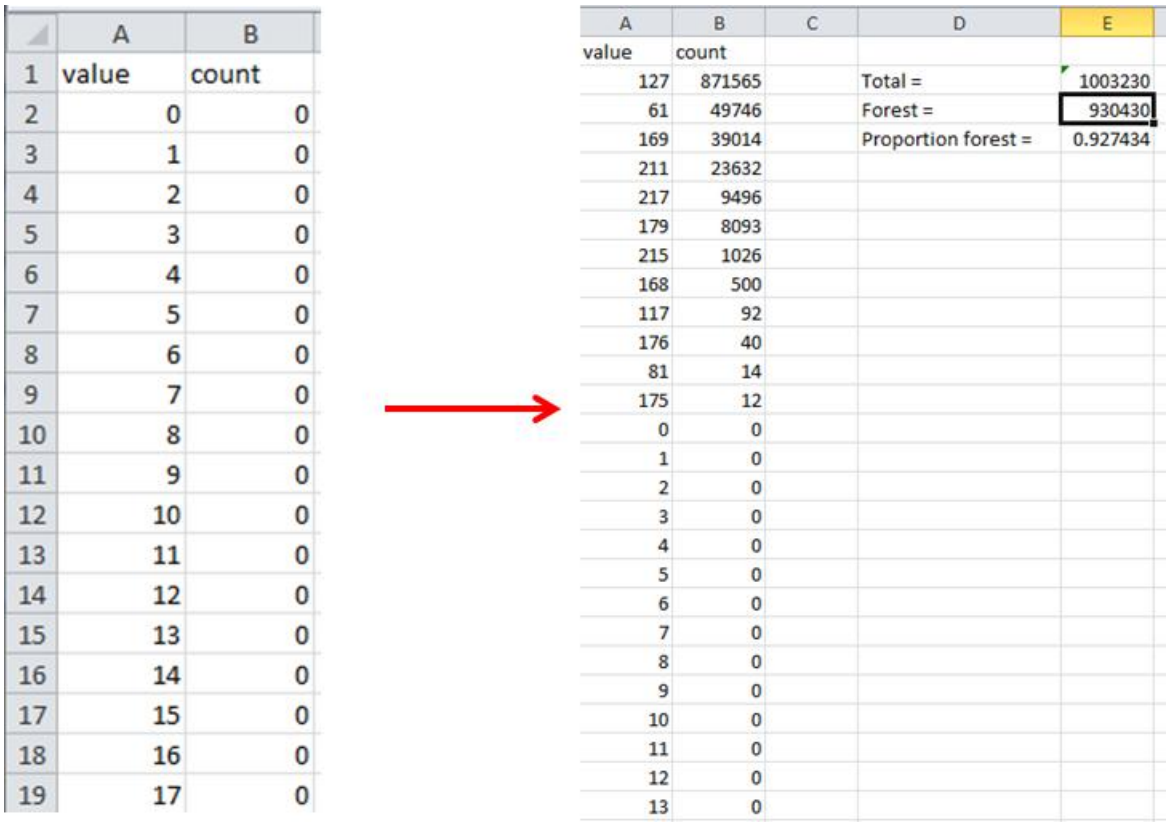
Appendix 5 – Efficient Analysis of the ImageJ Histogram Data using Excel

Open up the saved histogram file from ImageJ using Excel. You will have to import it… select **Yes** and **Next** when prompted. The file that will open up will have two columns: **Value** (the ImageJ color code) and **Count** (the number of pixels of that color value). First, sort the data via the column Count, from largest to smallest (there are a total of 255 values). You can ignore the many rows that have values with zero counts. Then, for the values that have non-zero count data, calculate the sum of all counts, the sum of the counts of the four land cover classes that correspond to forest (values 61, 127, 179, 215; see Table 1). Next, calculate the proportional coverage of forest (= forest counts / total counts).



	A	B
1	value	count
2	0	0
3	1	0
4	2	0
5	3	0
6	4	0
7	5	0
8	6	0
9	7	0
10	8	0
11	9	0
12	10	0
13	11	0
14	12	0
15	13	0
16	14	0
17	15	0
18	16	0
19	17	0

A	B	C	D	E
value	count			
127	871565		Total =	1003230
61	49746		Forest =	930430
169	39014		Proportion forest =	0.927434
211	23632			
217	9496			
179	8093			
215	1026			
168	500			
117	92			
176	40			
81	14			
175	12			
0	0			
1	0			
2	0			
3	0			
4	0			
5	0			
6	0			
7	0			
8	0			
9	0			
10	0			
11	0			
12	0			
13	0			

Fig. 1 ImageJ histogram data before and after data processing in Excel.

Table 1. Key for translating ImageJ Color codes to the 2001 and 2006 NLCD land use / land cover classes.

Land Use Category	Land Use / Cover Class	2001 NLCD Code	ImageJ Color
Non-forested Wetland	Open Water	11	117
	Emergent Herbaceous Wetland	95	158
Residential	Developed Open Space	21	211
	Low Intensity Developed	22	168
	Medium Intensity Developed	23	81
	High Intensity Developed	24	58
Forest	Deciduous Forest	41	127
	Evergreen Forest	42	61
	Mixed Forest	43	179
	Forested Wetland	90	215
Agricultural	Shrub/Scrub	52	176
	Grass/Herbaceous	71	217
	Hay/Pasture	81	169
	Cultivated Crops	82	112