To calculate the Shannon Index:

1) Measure the total forest area (A) and the area of each species (SA) in the forest, either using a forest survey or inventory data
2) Calculate the proportion of each species (P). This is the area of each species divided by total area (P=SA/A)
3) Take the natural log (ln) of the proportion (P) for each species and multiply by -1 (– ln(P))
4) Multiply -ln (P) by P
5) Sum the values of -P*ln(P)
   The scientific formula is

$$\mathrm{SI} = -\sum_{i=1}^{n} p_i \cdot \ln p_i$$

Species	Species Area (SA)	Proportion of Cover (P=SA/A)	Negative Natural Log of P -ln(P)	Product P * -ln(P)
Species 1	10	0.50	0.693	0.347
Species 2	5	0.25	1.386	0.347
Species 3	2	0.10	2.303	0.230
Species 4	2	0.10	2.303	0.230
Species 5	1	0.05	2.996	0.150
Forest Area (A)	20		Shannon Index	1.303

Species Richness	5
Percent of Dominant Species	50%
Shannon Index	1.303