

Calculating Shannon-Weiner Diversity Index

$$H^1 = -\sum p_i \times \ln p_i$$

Where H^1 = The Shannon Index

\sum = the sum of

p_i = frequency rating = n_i/N (ratio is how many of each kind divided by total count)

$\ln p_i$ = natural log of the frequency rating

Sample Student Data

Shannon-Weiner Diversity Index: Site #1 Windmill Branch Forest

Organism	n_i	p_i	$\ln p_i$	$p_i \times \ln p_i$
Subterranean Termite	5	5/24	-1.568	-0.3267
Thrip	3	3/24	-2.079	-0.259
Ground Beetle	1	1/24	-3.18	-0.132
Phalangidae	1	1/24	-3.18	-0.132
Swallowtail	1	1/24	-3.18	-0.132
Springtail	12	12/24	-0.693	-0.3465
Caddisfly	1	1/24	-3.18	-0.132
$N = 24$				$H^1 = 1.4602$

Remember that the Shannon Index has a minus sign in the calculation, so the index actually becomes 1.4602, not -1.4602.

Values of the Shannon Diversity Index for real communities are often found to fall between 1.0 and 6.0.