

THREE-WAY PERMANOVA RESULTS

METATARSAL

SECTION 20%

Permutation test for adonis under reduced model
Terms added sequentially (first to last)
Permutation: free
Number of permutations: 999

```
adonis2(formula = Mtt20_PC ~ Pattern * Habitat * Subspecies, data = Mtt20,  
method = "euclid", by = "terms")
```

	Df	SumOfSqs	R2	F	Pr(>F)
Pattern	1	0.009240	0.05067	4.0938	0.017 *
Habitat	2	0.006840	0.03751	1.5152	0.163
Subspecies	3	0.024097	0.13213	3.5586	0.004 **
Residual	63	0.142203	0.77970		
Total	69	0.182381	1.00000		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

SECTION 35%

Permutation test for adonis under reduced model
Terms added sequentially (first to last)
Permutation: free
Number of permutations: 999

```
adonis2(formula = MT35_PC ~ Pattern * Habitat * Subspecies, data = MT35,  
method = "euclid", by = "terms")
```

	Df	SumOfSqs	R2	F	Pr(>F)
Pattern	1	0.018662	0.06305	5.4346	0.003 **
Habitat	2	0.025173	0.08504	3.6653	0.003 **
Subspecies	3	0.035833	0.12105	3.4783	0.002 **
Residual	63	0.216340	0.73086		
Total	69	0.296009	1.00000		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

SECTION 50%

Permutation test for adonis under reduced model
Terms added sequentially (first to last)
Permutation: free
Number of permutations: 999

```
adonis2(formula = MT50_PC ~ Pattern * Habitat * Subspecies, data = MT50,  
method = "euclid", by = "terms")
```

	Df	SumOfSqs	R2	F	Pr(>F)
Pattern	1	0.01841	0.04505	3.2734	0.021 *
Habitat	2	0.02157	0.05279	1.9180	0.063 .
Subspecies	3	0.03686	0.09020	2.1848	0.014 *
Residual	59	0.33182	0.81196		
Total	65	0.40867	1.00000		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

SECTION 65%

Permutation test for adonis under reduced model
Terms added sequentially (first to last)
Permutation: free
Number of permutations: 999

adonis2(formula = MT65_PC ~ Pattern * Habitat * Subspecies, data = MT65,
method = "euclid", by = "terms")

	Df	SumOfSqs	R2	F	Pr(>F)
Pattern	1	0.01694	0.04146	2.9399	0.032 *
Habitat	2	0.01487	0.03638	1.2900	0.207
Subspecies	3	0.03686	0.09020	2.1322	0.016 *
Residual	59	0.34000	0.83196		
Total	65	0.40867	1.00000		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

SECTION 80%

Permutation test for adonis under reduced model
Terms added sequentially (first to last)
Permutation: free
Number of permutations: 999

adonis2(formula = MT80_PC ~ Pattern * Habitat * Subspecies, data = MT80,
method = "euclid", by = "terms")

	Df	SumOfSqs	R2	F	Pr(>F)
Pattern	1	0.005655	0.02185	1.6426	0.155
Habitat	2	0.013724	0.05303	1.9932	0.031 *
Subspecies	3	0.032872	0.12701	3.1828	0.001 ***
Residual	60	0.206560	0.79811		
Total	66	0.258811	1.00000		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

METACARPAL

SECTION 20%

Permutation test for adonis under reduced model
Terms added sequentially (first to last)
Permutation: free
Number of permutations: 999

```
adonis2(formula = Mtt35_PC ~ Pattern * Habitat * Subspecies, data = Mtt35,  
method = "euclid", by = "terms")
```

	Df	SumOfSqs	R2	F	Pr(>F)
Pattern	1	0.017207	0.10483	6.9239	0.001 ***
Habitat	2	0.004677	0.02850	0.9411	0.454
Subspecies	3	0.010545	0.06425	1.4145	0.148
Residual	53	0.131711	0.80243		
Total	59	0.164140	1.00000		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

SECTION 35%

Permutation test for adonis under reduced model
Terms added sequentially (first to last)
Permutation: free
Number of permutations: 999

```
adonis2(formula = MT35_PC ~ Pattern * Habitat * Subspecies, data = MT35,  
method = "euclid", by = "terms")
```

	Df	SumOfSqs	R2	F	Pr(>F)
Pattern	1	0.012666	0.07413	5.4336	0.007 **
Habitat	2	0.013214	0.07734	2.8343	0.011 *
Subspecies	3	0.026088	0.15270	3.7305	0.002 **
Residual	51	0.118883	0.69583		
Total	57	0.170851	1.00000		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

SECTION 50%

Permutation test for adonis under reduced model
Terms added sequentially (first to last)
Permutation: free
Number of permutations: 999

```
adonis2(formula = MT50_PC ~ Pattern * Habitat * Subspecies, data = MT50,  
method = "euclid", by = "terms")
```

	Df	SumOfSqs	R2	F	Pr(>F)
Pattern	1	0.011910	0.04895	2.9339	0.052 .
Habitat	2	0.003782	0.01554	0.4659	0.870
Subspecies	3	0.012490	0.05133	1.0256	0.386
Residual	53	0.215150	0.88418		
Total	59	0.243332	1.00000		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 '' 1

SECTION 65%

Permutation test for adonis under reduced model

Terms added sequentially (first to last)

Permutation: free

Number of permutations: 999

adonis2(formula = MT65_PC ~ Pattern * Habitat * Subspecies, data = MT65,
method = "euclid", by = "terms")

	Df	SumOfSqs	R2	F	Pr(>F)
Pattern	1	0.011089	0.04443	2.8813	0.041 *
Habitat	2	0.008773	0.03515	1.1397	0.314
Subspecies	3	0.017298	0.06931	1.4982	0.143
Habitat:Subspecies	1	0.008430	0.03378	2.1904	0.082 .
Residual	53	0.203977	0.81732		
Total	60	0.249568	1.00000		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 '' 1

SECTION 80%

Permutation test for adonis under reduced model

Terms added sequentially (first to last)

Permutation: free

Number of permutations: 999

adonis2(formula = MT80_PC ~ Pattern * Habitat * Subspecies, data = MT80,
method = "euclid", by = "terms")

	Df	SumOfSqs	R2	F	Pr(>F)
Pattern	1	0.004821	0.02108	1.4138	0.215
Habitat	2	0.010136	0.04433	1.4864	0.164
Subspecies	3	0.029549	0.12924	2.8887	0.003 **
Residual	54	0.184127	0.80534		
Total	60	0.228632	1.00000		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 '' 1

Ph1_anterior

Permutation test for adonis under reduced model
Terms added sequentially (first to last)
Permutation: free
Number of permutations: 999

adonis2(formula = MT80_PC ~ Pattern * Habitat * Subspecies, data = MT80,
method = "euclid", by = "terms")

	Df	SumOfSqs	R2	F	Pr(>F)
Pattern	1	0.006962	0.11362	7.1820	0.001 ***
Habitat	2	0.001249	0.02038	0.6441	0.759
Subspecies	3	0.007854	0.12819	2.7008	0.003 **
Pattern:Habitat	1	0.001585	0.02587	1.6351	0.137
Residual	45	0.043621	0.71194		
Total	52	0.061271	1.00000		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Ph1_posterior

Permutation test for adonis under reduced model
Terms added sequentially (first to last)
Permutation: free
Number of permutations: 999

adonis2(formula = MT80_PC ~ Pattern * Habitat * Subspecies, data = MT80,
method = "euclid", by = "terms")

	Df	SumOfSqs	R2	F	Pr(>F)
Pattern	1	0.000717	0.01301	0.8935	0.482
Habitat	2	0.004295	0.07791	2.6753	0.005 **
Subspecies	3	0.004361	0.07911	1.8110	0.027 *
Residual	57	0.045751	0.82997		
Total	63	0.055123	1.00000		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1