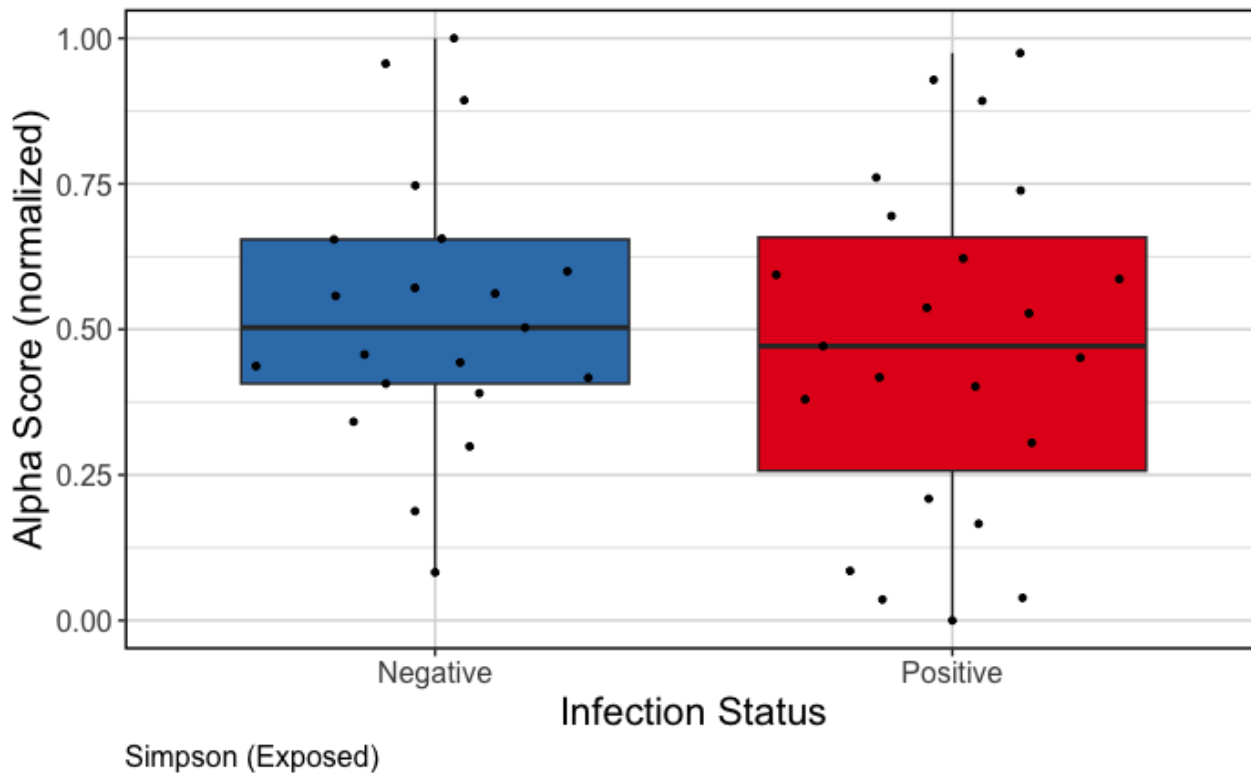


Microbiome Analysis: Infection

Michael Sieler, December 19, 2022

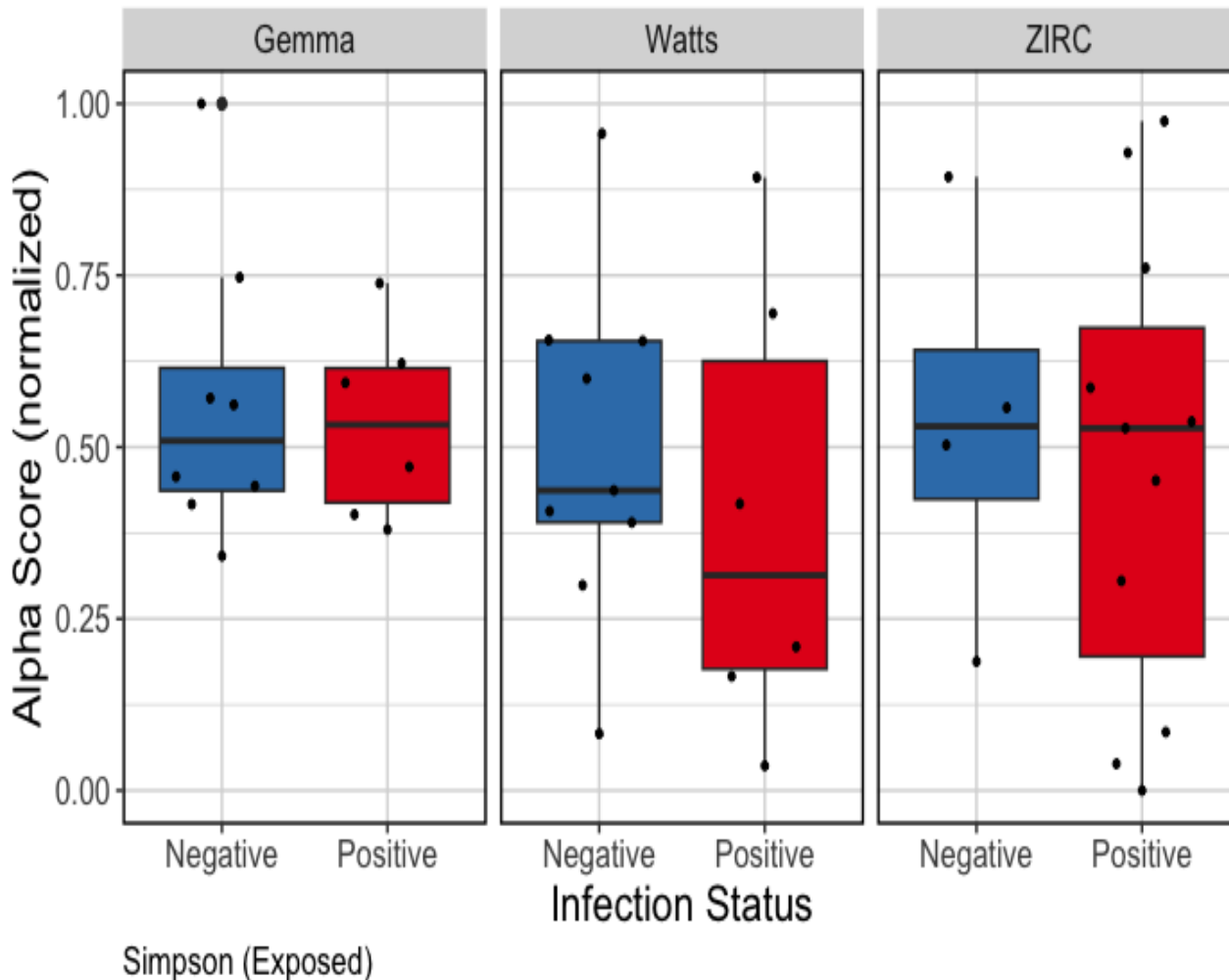
Alpha diversity

We do not see a statistical difference in alpha diversity and presence of infection (males and females)



ANOVA(glm(Alpha.Score ~ Infection), family = quasibinomial))					
metric	term	statistic	df	p.value	sig
Observed	Infection.Status	0.042	1	0.838	
Shannon	Infection.Status	0.167	1	0.683	
Simpson	Infection.Status	0.582	1	0.446	

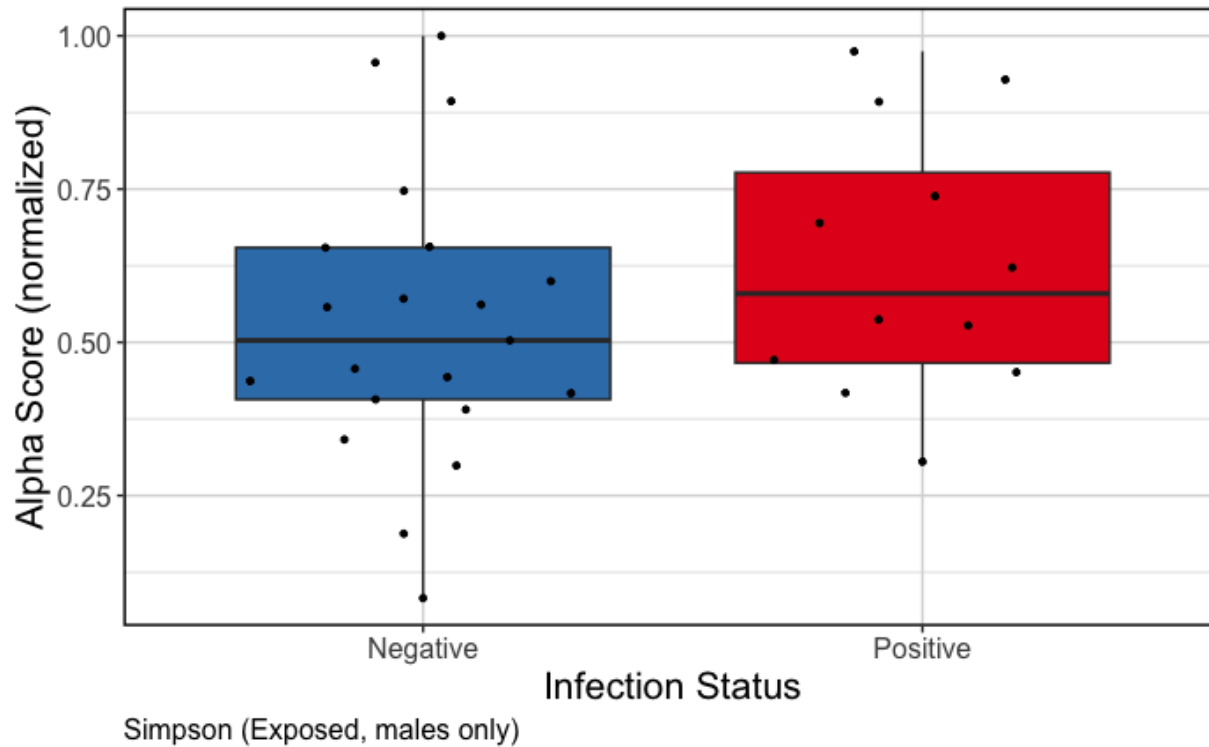
We do not see a statistical difference in alpha diversity and presence of infection depending on diet (males and females)



ANOVA(glm(Alpha.Score ~ Diet*Infection), family = quasibinomial)

metric	term	statistic	df	p.value	sig
Observed	Infection.Status	0.733	1	0.392	
	Diet	29.258	2	<0.001	*
	Infection.Status:Diet	0.628	2	0.730	
Shannon	Infection.Status	0.593	1	0.441	
	Diet	14.156	2	<0.001	*
	Infection.Status:Diet	0.044	2	0.978	
Simpson	Infection.Status	0.541	1	0.462	
	Diet	0.861	2	0.650	
	Infection.Status:Diet	0.091	2	0.956	

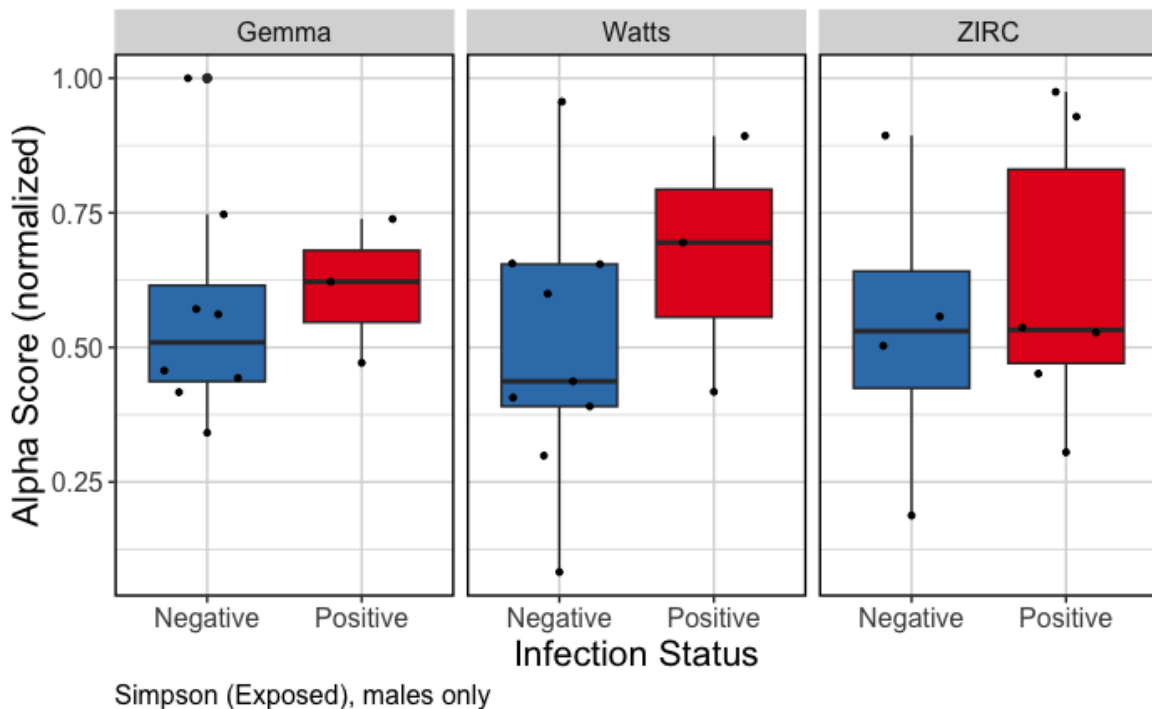
We do not see a statistical difference in alpha diversity and presence of infection (males only)



ANOVA(glm(Alpha.Score ~ Infection), family = quasibinomial) ,
males only

metric	term	statistic	df	p.value	sig
Observed	Infection.Status	0.588	1	0.443	
Shannon	Infection.Status	1.116	1	0.291	
Simpson	Infection.Status	1.421	1	0.233	

We do not see a statistical difference in alpha diversity and presence of infection depending on diet (males only)

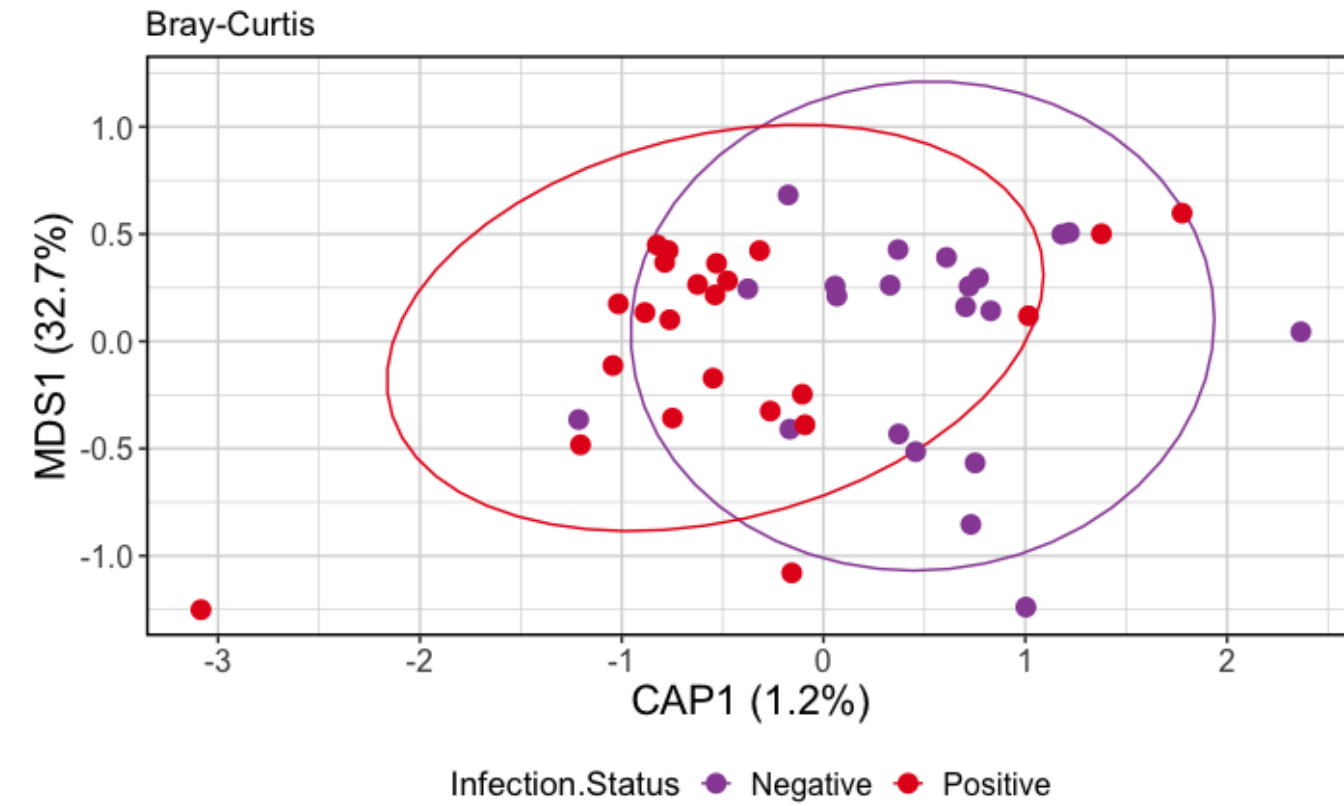


ANOVA(glm(Alpha.Score ~ Diet*Infection), family = quasibinomial)

metric	term	statistic	df	p.value	sig
Observed	Infection.Status	0.118	1	0.732	
	Diet	23.626	2	<0.001	*
	Infection.Status:Diet	1.196	2	0.550	
Shannon	Infection.Status	0.645	1	0.422	
	Diet	10.491	2	0.005	*
	Infection.Status:Diet	0.906	2	0.636	
Simpson	Infection.Status	1.154	1	0.283	
	Diet	0.131	2	0.936	
	Infection.Status:Diet	0.314	2	0.855	

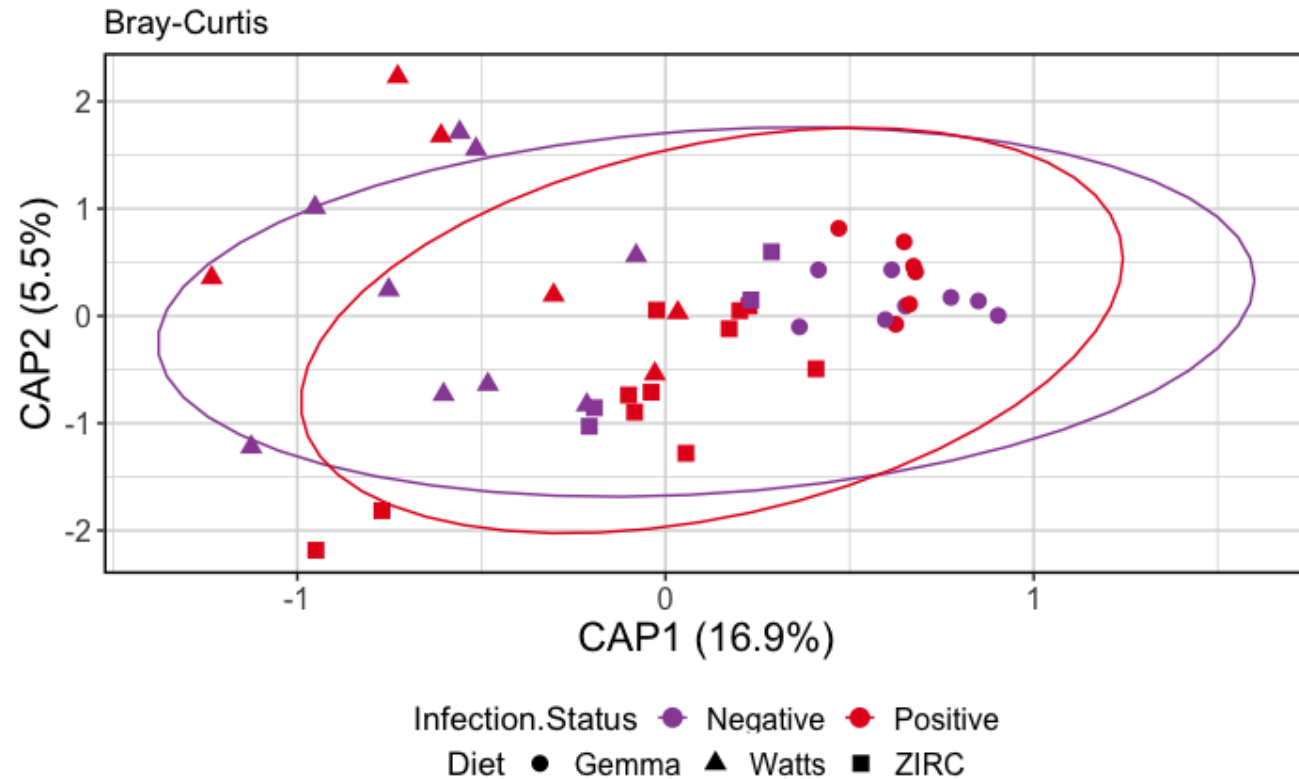
Beta diversity

We do not see a statistical difference in beta diversity
and presence of infection
(males and females)



Distance-based redundancy analysis (dbRDA) ordination, Beta.Score ~ Infection						
metric	term	Df	SumOfSqs	statistic	p.value	sig
Bray-Curtis	Infection.Status	1.00	0.02915815	0.492	0.878	
	Residual	42.00	2.48963116			
Canberra	Infection.Status	1.00	0.24985811	1.059	0.338	
	Residual	42.00	9.91405427			
Sørensen	Infection.Status	1.00	0.09436585	1.081	0.345	
	Residual	42.00	3.66472024			

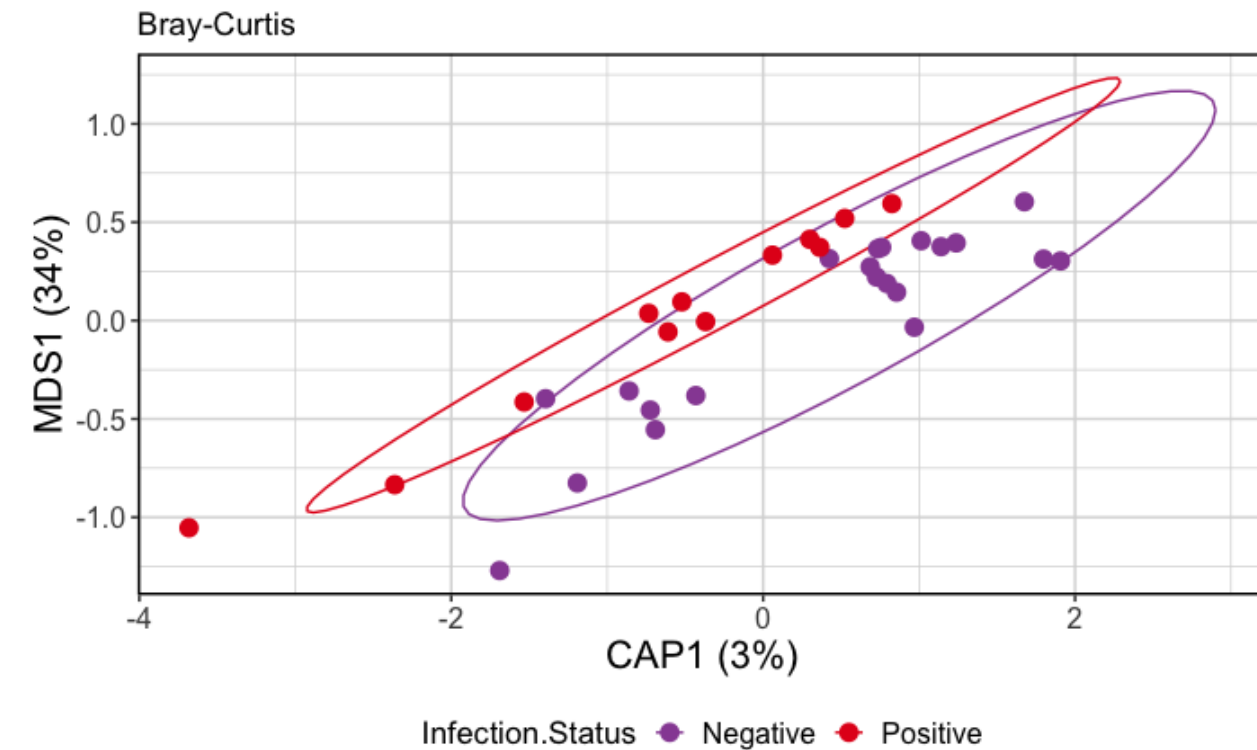
We do not see a statistical difference in beta diversity and presence of infection depending on diet (males and females)



Distance-based redundancy analysis (dbRDA) ordination. Beta.Score ~ Infection*Diet

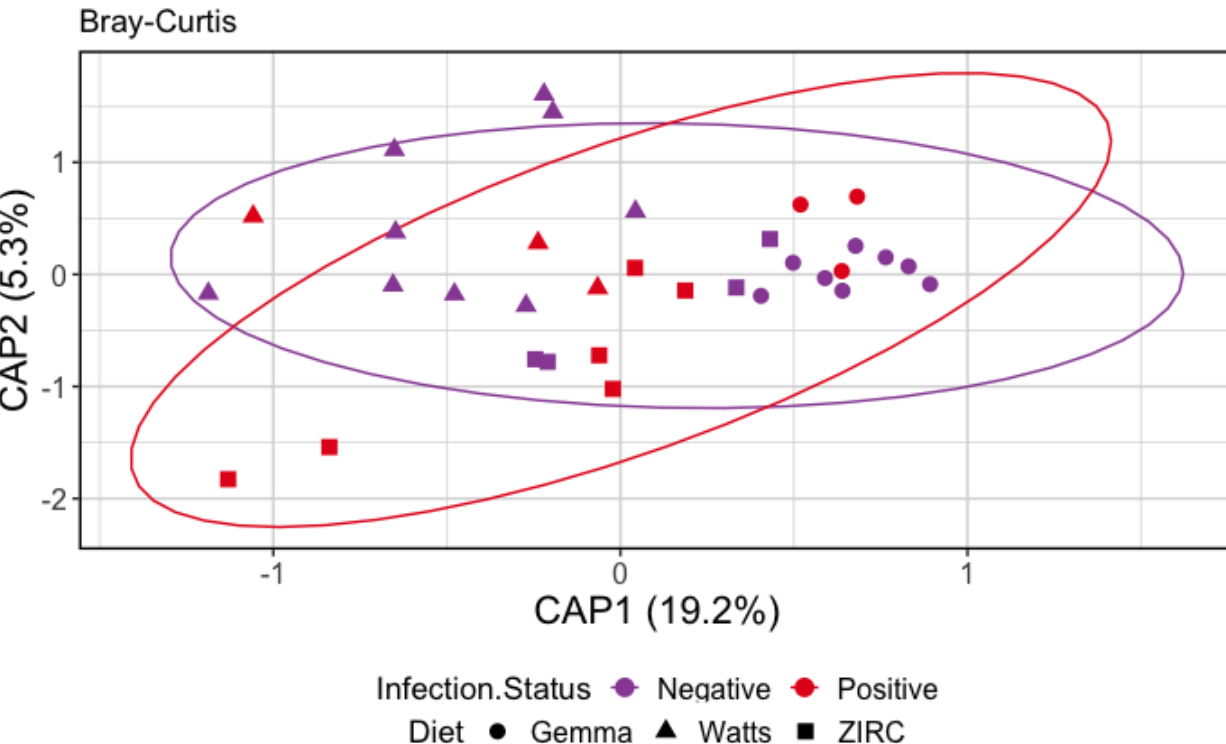
metric	term	Df	SumOfSqs	statistic	p.value	sig
Bray-Curtis	Diet	2.00	0.54487892	5.578	0.001	*
	Infection.Status:Diet	2.00	0.08875981	0.909	0.529	
	Infection.Status	1.00	0.02915815	0.597	0.760	
	Residual	38.00	1.85599243			
Canberra	Diet	2.00	1.75371316	4.296	0.001	*
	Infection.Status	1.00	0.24985811	1.224	0.173	
	Infection.Status:Diet	2.00	0.40351911	0.988	0.481	
	Residual	38.00	7.75682200			
Sørensen	Diet	2.00	0.84140066	5.992	0.001	*
	Infection.Status	1.00	0.09436585	1.344	0.166	
	Infection.Status:Diet	2.00	0.15530811	1.106	0.307	
	Residual	38.00	2.66801146			

We do not see a statistical difference in alpha diversity
and presence of infection
(males only)



Distance-based redundancy analysis (dbRDA) ordination. Beta.Score ~ Infection						
metric	term	Df	SumOfSqs	statistic	p.value	sig
Bray-Curtis	Infection.Status	1.00	0.05996175	0.972	0.405	
	Residual	31.00	1.91188446			
Canberra	Infection.Status	1.00	0.26875943	1.098	0.271	
	Residual	31.00	7.58963052			
Sørensen	Infection.Status	1.00	0.12295920	1.349	0.161	
	Residual	31.00	2.82654440			

We do not see a statistical difference in alpha diversity and presence of infection depending on diet (males only)



Distance-based redundancy analysis (dbRDA) ordination. Beta.Score ~ Infection*Diet						
metric	term	Df	SumOfSqs	statistic	p.value	sig
Bray-Curtis	Diet	2.00	0.44583713	4.307	0.001	*
	Infection.Status	1.00	0.05996175	1.158	0.266	
	Infection.Status:Diet	2.00	0.06845416	0.661	0.800	
	Residual	27.00	1.39759316			
Canberra	Diet	2.00	1.42589844	3.316	0.001	*
	Infection.Status	1.00	0.26875943	1.250	0.139	
	Infection.Status:Diet	2.00	0.35943130	0.836	0.813	
	Residual	27.00	5.80430079			
Sørensen	Diet	2.00	0.68456706	4.595	0.001	*
	Infection.Status	1.00	0.12295920	1.651	0.061	
	Infection.Status:Diet	2.00	0.13056042	0.876	0.639	
	Residual	27.00	2.01141692			