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Patience, Young Grasshopper: Analyzing the Fungal Components of the Grasshopper Gut Microbiome

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Patience, Young Grasshopper: Analyzing the fungal components of the grasshopper gut microbiome



Honors Thesis

Staci Seitz

Department: Mathematics

Advisors: Yvonne Sun, Ph.D., Ying-Ju Chen, Ph.D., Chelse Prather, Ph.D.

April 2020

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Abstract

Microbes inhabit many corners of the Earth, including the intestines of all animals. These intestinal microbes, collectively called the “gut microbiome,” provide numerous nutritional and regulatory functions for the animals they live in and thus play an important role in animal health. The fungal communities in insects, specifically, play a diverse, but important role in insect physiology, as well as insect control. The goals of this project were to expand knowledge of R programming through statistical analysis of microbial ecology and to identify the fungal communities in grasshoppers to enrich our knowledge in insect fungal microbiome. Questions that we wanted to answer were: “what is the composition of the fungal communities in the microbiome of grasshoppers?” and “what drives the composition of the fungal communities in the microbiome of grasshoppers?” The grasshoppers were collected in the summer of 2017 from a Texas prairie as part of a multifactorial micronutrient experiment. Upon arrival at the University of Dayton, the guts of the grasshoppers were removed to extract the DNA, which was then submitted for sequencing by Zymo Research. After analyzing the sequencing results, we identified two fungal phyla that were present in all samples: Ascomycota and Basidiomycota. Within Ascomycota, the class Dothideomycetes is most prevalent. Within Basidiomycota, the classes Tremellomycetes and Ustilaginomycetes are most prevalent. Dothideomycetes are typically found as saprobes, or decomposers, that break down dead leaf matter. They are also commonly found on living plants, acting as pathogens or endophytes. Tremellomycetes are a type of pathogenic fungus that acts as a parasite toward insects and plants. Ustilaginomycetes, known as “smut fungi,” act as a parasite toward vascular plants. These classes of fungi are directly involved with plant matter. Findings include that diet and phylogeny are potential drivers of the fungal composition within the grasshopper gut microbiome.



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Introduction

Microbes are found all around us. Bacteria, fungi, protozoa, and viruses all exist within the gut microbiome. Intestinal microbes, or the gut microbiome, play an important role in overall health. Bacteria and fungi exist within the gut of all animals and provide important functions. The fungal communities, specifically, within the gut microbiome of insects are crucial in understanding insect physiology, but unfortunately, little is known about the fungal communities in the gut and their role in the health of animals. Many studies focus on the bacterial components, but the fungal components in the microbiome, collectively called the mycobiome, are also key in understanding the power of the microbiome.

The bacterial database and libraries are much vaster than the fungal libraries. The sequencing that takes place in research studies involves using the known bacterial sequences and comparing them to the sampled sequences from the microbiome. Many efforts have been made to expand the bacterial database and connect these findings with health and disease in humans. There are, on average, over 1000 bacterial species within the dominant bacterial phyla of Bacteroidetes and Firmicutes in a healthy human adult. In particular, the gut microbiome is more diverse than other areas of the body. Furthermore, there is plenty of variability within the gut microbiome among humans. Scientists have attempted to determine a core set of bacteria and patterns to account for variability. Environmental factors, such as diet, are known to influence the variability of the microbiome between humans. Richness and diversity are two parameters used to analyze the bacterial communities. Through these parameters, researchers can better understand the effects that the communities within the microbiome play on physiology and function. Digestion is one of the functional activities that is linked to the health of the microbiome. Furthermore, there are connections between the bacterial communities within the microbiome and the ability of the body's immune system and various conditions, such as cardiovascular disease, irritable bowel disease, inflammatory bowel disease, and cancers (Shreiner et al. 2015).

Studying the gut microbiome, in general, is an important and constantly improving field. The health of the gut microbiome has recently been linked to more and more diseases and health conditions. Recent studies have linked colorectal cancer to the health and condition of the gut microbiome. One particular study compared the gut microbiome of three different groups of patients: healthy, adenomas, and carcinomas. Using 16s rRNA gene sequencing of the V4 region, the feces of these patients were analyzed. Operational taxonomic units were used to group sequences and calculate the relative abundance for each sample. As a result, variations within the microbiome were found between the different groups of patients, with some groups having more or fewer operational taxonomic units (Zackular et al. 2014).

Many studies have shown that diet greatly affects the composition of the microbiome. According to a 2017 study, changing diet can alter the composition of the gut microbiome within 24 hours. Reverting the diet back to the original causes the microbiome to return to its baseline within 48 hours. A human's diet alters the bacteria within the gut, causing biological effects, such as changing metabolism and the immune system, thus causing disease(s) or predisposing individuals to diseases. It was found that a vegetarian diet led to a lower amount of *Bacteroides* and *Bifidobacterium* species (Singh et al. 2017).

Knowing that diet and other environmental factors, such as phylogeny, affect bacterial diversity within the gut microbiome of humans, researchers hypothesize that the pattern would be observed in insects. In a 2014 study, researchers investigated the gut bacterial diversity in insects and identified dominant bacterial communities in their samples, suggesting a “core” microbiome. To analyze the gene sequences, species richness and Shannon diversity indices were calculated, along with Jaccard distances and a principal coordinate analysis, which is similar to a non-metric multidimensional scaling analysis. The relative abundances of anaerobes were significantly different according to factors, such as diet, habitat, and phylogeny. This study also found that in omnivorous insects, the bacterial diversity within the gut microbiome was significantly higher compared to herbivorous and carnivorous insects (Yun et al. 2014).

The information that is available on the mycobiome is currently limited but expanding over time. As sequencing technology improves, the extensive world of the mycobiome is slowly being discovered (Huffnagle and Noverr 2013). The expansion of the fungal database and libraries are crucial in order to identify and analyze the different types of fungi within the body. Furthermore, learning more about the insect microbiome can help unveil more information about how to combat the rapidly declining population of insects. Insects are of critical importance to many different ecosystems, providing a viable food source for animals, pollinating various plant species, and recycling nutrients within the soil. Scientists are linking this decline to continuous urbanization, climate change, and frequent agricultural interventions, namely fertilizers and pesticides (Carrington). It is of the utmost importance to learn more about how the microbiome is impacted by these environmental alterations to conserve and protect the insect populations, as the human species cannot survive without them.

For my Honors Thesis Project, I wanted to use my mathematical skills and current knowledge of data analysis to expand my knowledge of R programming and explore data analysis and methods used to analyze microbial ecology. Some of the questions we wanted to answer were: what is the composition of the fungal communities in the microbiome of grasshoppers and what drives this composition? Does grasshopper species or sex affect the fungal composition? The hypothesis was that there would be a “core” fungal microbiome and that generally the same taxa of fungi would appear in our samples. Furthermore, we expected to see fungal diversity within the grasshopper gut due to the breadth of known fungal species and that the micronutrients in the environment can drive this diversity.

Methods

The dataset was provided to me by Dr. Chelse Prather, an assistant professor in the University of Dayton Biology Department. The grasshoppers were collected using sweep nets in the summer of 2017 from a Texas prairie as part of an experiment in which plots of land were treated with different micronutrients. The grasshoppers were brought back to the University of Dayton where the entire grasshopper gut was removed from the insect, and DNA was extracted and submitted for sequencing by Zymo Research. The dataset included the sequencing results and information about the species of grasshoppers, sex of the grasshoppers, and micronutrient treatment.

The six species of grasshopper included in the sample were: *Conocephalus fasciatus* (n=3), *Conocephalus strictus* (n=8), *Orchelimum concinnum* (n=9), *Orchelimum vulgare* (n=32), *Paroxya atlantica* (n=4), and *Scudderia texensis* (n=4). The number of samples collected from each grasshopper species represents the overall abundance of the species in the field. The dataset contains 60 grasshoppers total, 30 males and 30 females. Males and females were collected from all grasshopper species, except the species *Scudderia texensis*, in which only females were collected.

The dataset was then cleaned, organized, and loaded into RStudio (version 3.5.3) to analyze the composition of fungi within these grasshoppers. RStudio, including the *vegan* package was used to analyze the data. Shannon diversity values were calculated during the *diversity* function in RStudio in the *vegan* package. P-values were then calculated using non-parametric Kruskal-Wallis tests to evaluate the significance of the Shannon diversity values. Non-metric multidimensional scaling (NMDS) was also used to analyze the data. NMDS collapses multidimensional data to make it easier to interpret and analyze. The procedure is iterative and uses rank orders to calculate the stress between the collapsed predicted measurements.

Some of the taxa appeared in just one or two samples or appeared as such a small percentage, so a parameter was decided upon to group the taxa together. Dominant fungal taxa contributed a mean relative abundance of over 1.5% of the sequences for at least one grasshopper species within the taxonomic level being examined. The taxa that contributed a mean relative abundance of less than 1.5% were grouped together as “Other.” Since less is known about the fungal components, this ended up affecting the accuracy of the data. The limitations of the fungal library caused many groups of fungi to be unidentified, or “Unassigned,” as labeled in the graphs. These unassigned groups are still important to include in the analysis.

Results

Using the Internal Transcribed Spacer (ITS) regions, analysis was performed on the fungal communities within the grasshopper gut microbiome. Mean fungal species richness and mean Shannon diversity indices were calculated.

Species	Sex	n=	Mean Fungal Species Richness	Mean Shannon Diversity Index
Overall	All	60	24.0667	1.6894
	Male	30	21.2	1.7236
	Female	30	26.9333	1.6552
<i>Conecephalus faciatus</i>	All	3	17	1.4968
	Male	2	10.5	1.0202
	Female	1	30	2.45
<i>Conecephalus strictus</i>	All	8	25.5	1.9087
	Male	5	22	1.8635
	Female	3	31.3333	1.9842
<i>Orchelimum concinnum</i>	All	9	18.6667	1.4475
	Male	5	19.25	1.6554
	Female	4	18.2	1.2811
<i>Orchelimum vulgare</i>	All	32	26.3438	1.869
	Male	16	22.4375	1.9865
	Female	16	30.25	1.7516
<i>Paroxya atlantica</i>	All	4	23.25	0.8885
	Male	3	23	0.6479
	Female	1	24	1.6101
<i>Scudderia texensis</i>	All	4	21.25	1.3036
	Male*	0	-	-
	Female	4	21.25	1.3036

Table 1: Sample size, mean fungal species richness, and mean Shannon diversity index for each grasshopper species (*no male samples of *Scudderia texensis*)

As shown by Table 1, the mean fungal species richness was 24.0667. On average, there were approximately 24 different fungal taxa in each individual sample. Overall, female grasshoppers had a larger mean fungal species richness compared to the male grasshoppers.

The Shannon diversity index of a sample measures how many different fungal groups there are in each sample. The p-value for the Shannon diversity values for grasshopper sex is 0.8130, and the p-value for the Shannon diversity values for grasshopper species is 0.2658. Because both of the p-values are high (>0.05), there is no significant difference between the Shannon Diversity values for the grasshopper sex nor the grasshopper species.

The abbreviations of the grasshopper species on the following figures are: *Conocephalus fasciatus* (cf), *Conocephalus strictus* (cs), *Orchelimum concinnum* (oc), *Orchelimum vulgare* (ov), *Paroxya atlantica* (pa), and *Scudderia texensis* (st).

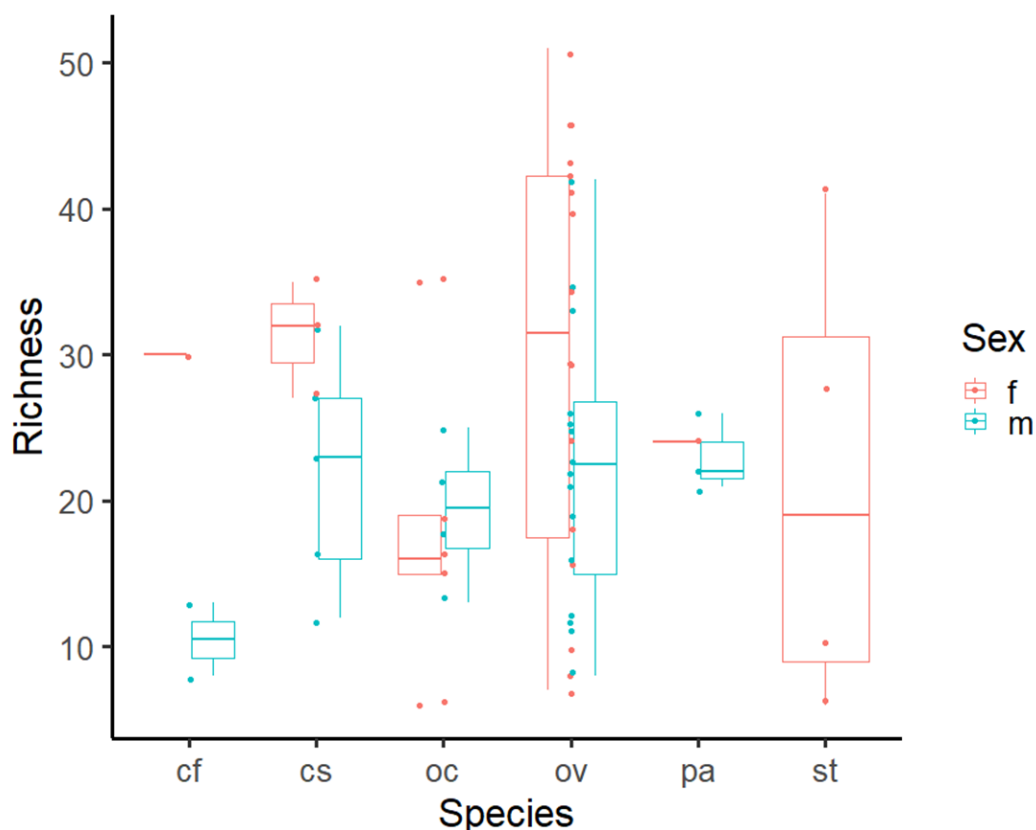


Figure 1: Fungal richness by grasshopper species

Figure 1 represents the fungal species richness in each of the six grasshopper species, separated by males and females. The range of richness is 6 to 51. Generally, it appears that females have a higher average fungal richness compared to the male grasshoppers. The grasshopper species, *Orchelimum vulgare* and *Scudderia texensis*, abbreviated “ov” and “st”, seem to have a bigger range of fungal richness compared to the other species of grasshoppers.

After analysis of the sequencing results, we identified two fungal phyla that were present in all samples: *Ascomycota* and *Basidiomycota*. The other fungal phyla were scarcely present within the samples. There was only one group present in every sample, which accounted for, on average, 6% of the fungal composition: kingdom *Fungi*, phylum *Ascomycota*, class *Dothideomycetes*, order *Capnodiales*, family *Davidiellaceae*, genus *Cladosporium*. The total fungal taxa that were present in the samples was 159.

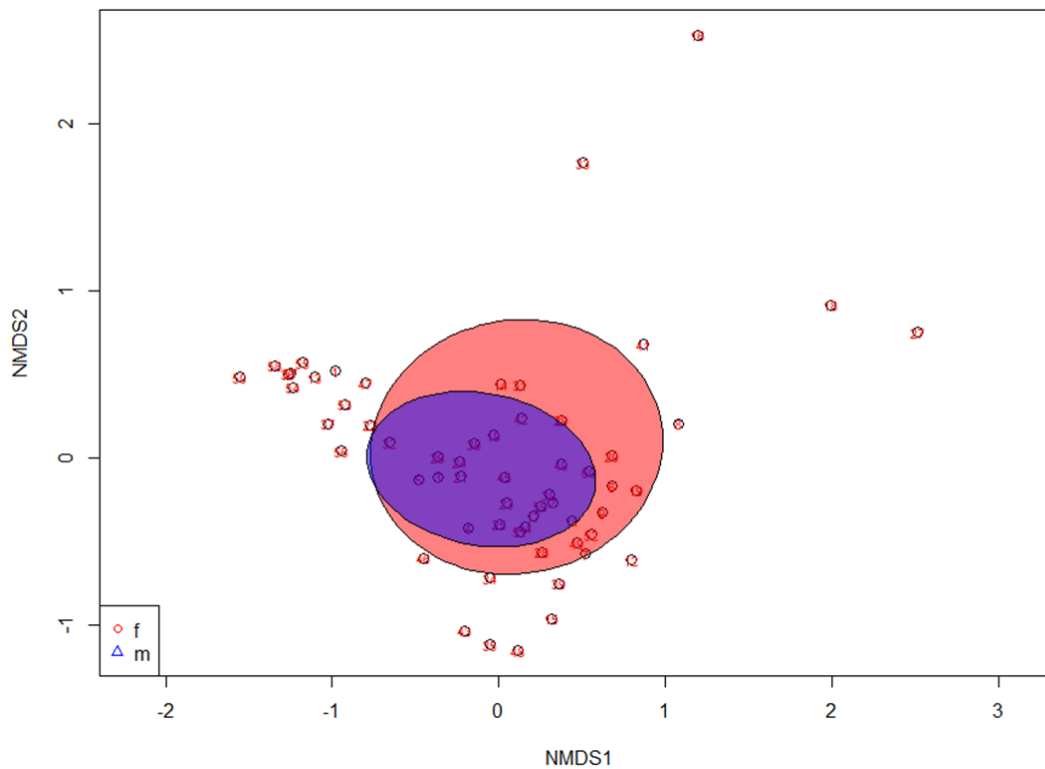


Figure 2: NMDS by grasshopper sex

The NMDS method creates a distance, or dissimilarity, matrix. In Figure 2, the ovals that represent female (red) and male (purple) grasshoppers overlap, so it is expected that the male and female samples are more similar in fungal composition.

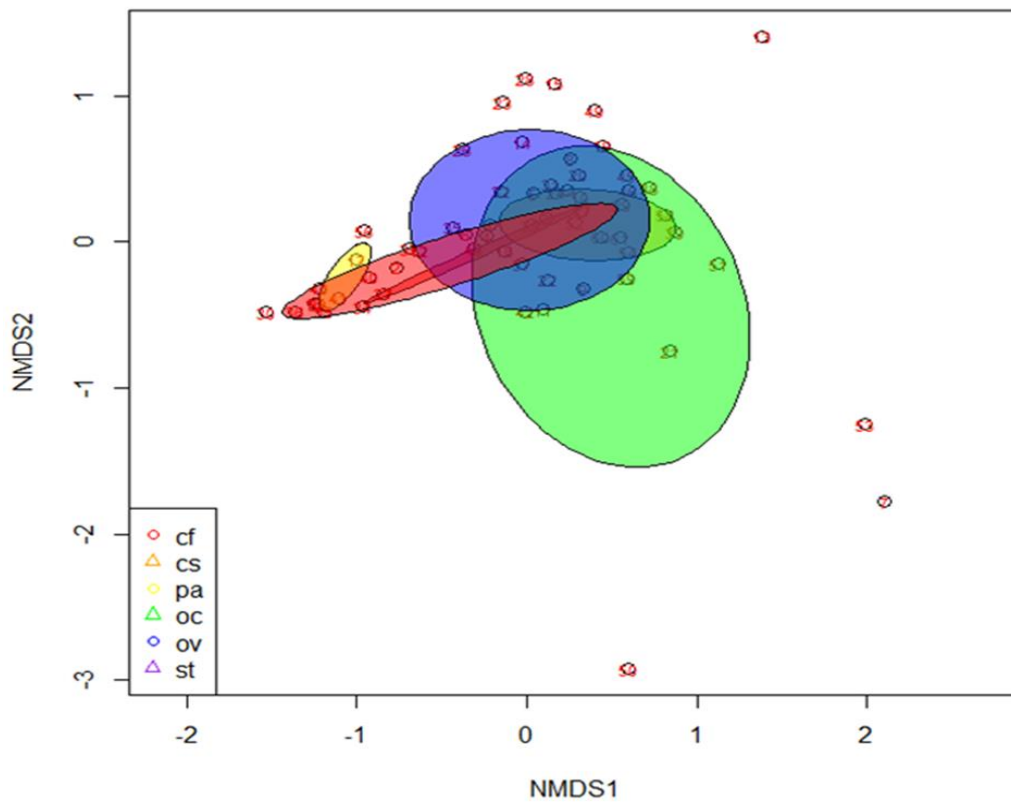


Figure 3: NMDS by grasshopper species

In Figure 3, there is more variation between the grasshopper species. Most of the ovals, representing the grasshopper species, do overlap in the center, but the yellow oval, which represents the grasshopper species *P. atlantica*, sticks out a bit from the others. Because of this, it is expected that there is more variation between *P. atlantica* and the other grasshopper species.

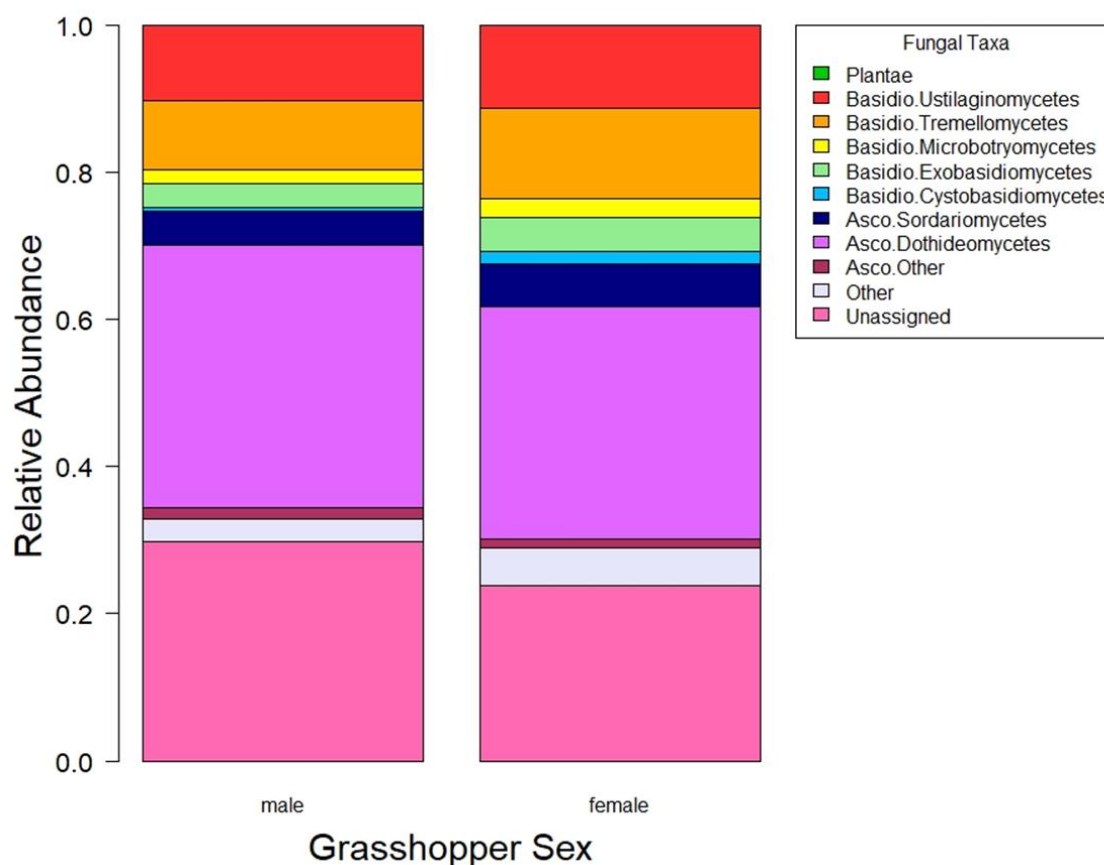


Figure 4: Relative abundance of fungal taxa by grasshopper sex

The stacked abundance graphs represent the relative abundance of fungal taxa at the class taxonomic level between female and male grasshoppers. Fungal classes were included that contributed a mean relative abundance of over 1.5% of the sequences for at least one grasshopper species at the class taxonomic level. Classes that contributed a mean relative abundance of less than 1.5% were grouped together as “Other.” As expected from the NMDS analysis, it appears that male and female grasshoppers are similar in fungal composition. The pink “Unassigned” group takes up about an average of 25-30% of the fungal composition due to the lack of the fungal libraries available during sequencing. The purple group represents the class *Dothideomycetes* in the phylum *Ascomycota*, which, on average, takes up about 25% of the grasshoppers’ fungal microbiome.

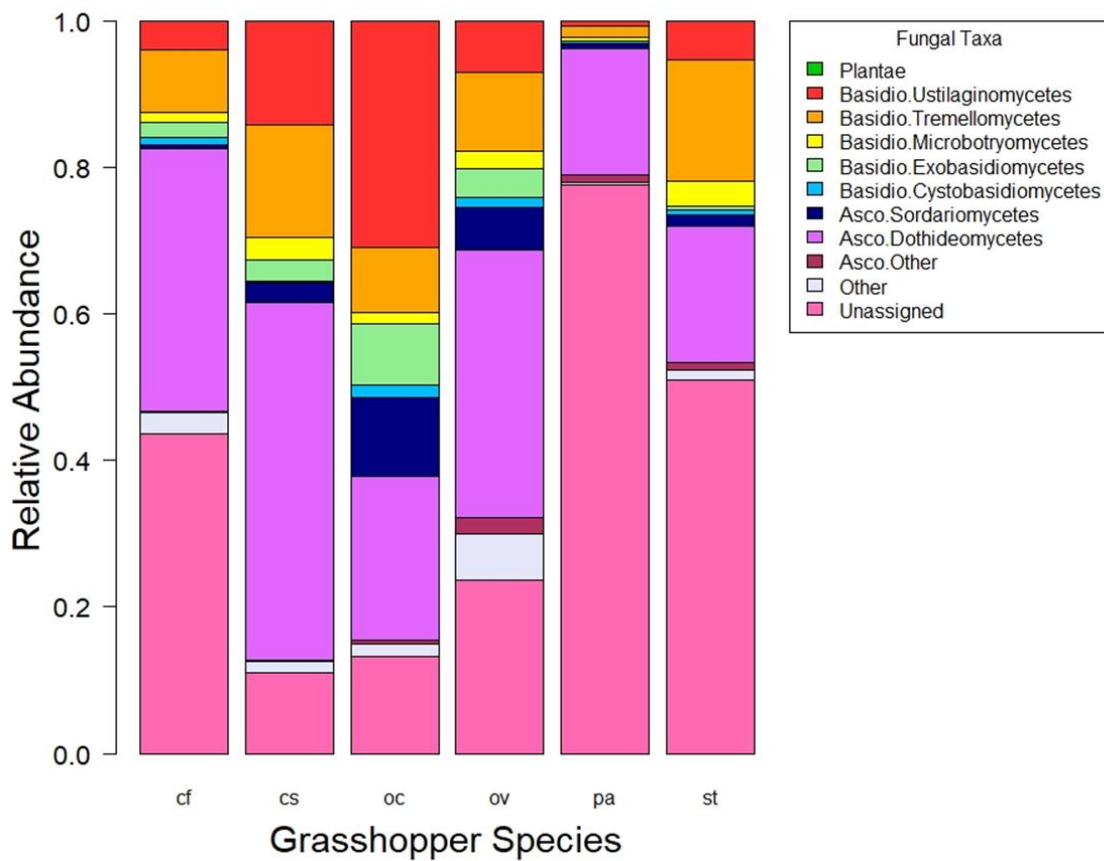


Figure 5: Relative abundance of fungal taxa by grasshopper species

Fungal classes were included that contributed a mean relative abundance of over 1.5% of the sequences for at least one grasshopper species at the class taxonomic level. Classes that contributed a mean relative abundance of less than 1.5% were grouped together as “Other.” As expected from the NMDS analysis, there is more variation between the grasshopper species. The *P. atlantica* grasshopper species has a significantly higher abundance of the “Unassigned” group of fungi.

Discussion / Conclusion

The gut microbiome of grasshoppers contains a vast, diverse fungal community. It was hypothesized that there is a “core” fungal microbiome in grasshoppers, which could be identified through the stacked abundance figures (Figure 4,5). The dominant fungal phyla present were clearly *Ascomycota* and *Basidiomycota*, with very few samples containing any other phyla. A study of the mycobiome was performed on mice using molecular techniques to identify the present fungal taxa. The mice mycobiome contained the four major fungal phyla, *Ascomycota*, *Basidiomycota*, *Zygomycota*, and *Chytridiomycota*. The study also found differences in the fungal communities between the specific pathogen-free mice and the restricted bacterial flora mice. The study hypothesized that *Candida* spp. would be present in the mycobiome of mice due to its ability to grow in the intestines and its prevalence in the human gastrointestinal tract. However, there was a lack of *Candida* spp. within the mice mycobiome, which was notable (Huffnagle and Noverr 2013). There was no appearance of *Candida* spp. within the grasshopper gut microbiome, as well.

Specifically, within *Ascomycota*, the class *Dothideomycetes* is most prevalent. Within *Basidiomycota*, the classes *Tremellomycetes* and *Ustilaginomycetes* are most prevalent. All of these dominant fungal classes are directly related with plant matter. There was only one group of fungal taxa present in all 60 gut samples at the fungal genus level, which was the genus *Cladosporium* in the class *Dothideomycetes*. *Cladosporium* is considered a plant pathogenic fungus that can be responsible for lesions of leaves. This genus of fungi is also commonly found in soil and organic matter (Bensch et al. 2012). The connection with plant matter could come from the food sources of the grasshoppers and potentially fungal presence in the soil. Thus, it is difficult to determine whether these taxa are permanent residences within the grasshopper gut. A 2019 study performed on ambrosia beetles also identified the genus *Cladosporium* as the dominant plant pathogen within the gut microbiome. Furthermore, the study also found that many of the fungal communities detected in the ambrosia beetles are connected to organic matter, suggesting

that the relationship between the beetles and these microorganisms can alter the gut microbiome (Rassati et al. 2019).

Diet and phylogeny are identified as the potential drivers behind the composition of the fungal microbiome within grasshoppers. *P. atlantica* tends to eat strictly plant matter, while the five other species of grasshoppers are omnivores, so they feed on plant matter and also other small insects. The toothed mandibles of *P. atlantica* suggest that this species can feed on forbs and grasses, which could potentially explain the shift in prevalence of the “Unassigned” taxa of fungi within the gut, leading to more diverse fungal communities (Squitier and Capinera 2002). The limitations within the fungal libraries had an impact of the identification of the fungal communities. The sequencing results contained many “Unassigned” categories within the taxonomic levels. This poses an extra challenge because there is so much diversity within those “Unassigned” categories that cannot be accounted for when identifying the fungal communities within the microbiome.

While diet could explain the variation between *P. atlantica* and the other grasshopper species, another possible explanation is its phylogeny. The species *P. atlantica* comes from the subfamily Cyrtacanthacridinae, or short-horned grasshoppers, while the other grasshopper species are long-horned grasshoppers (Squitier and Capinera 2002). The grasshopper species *C. fasciatus*, *C. strictus*, *O. concinnum*, and *O. vulgare* are katydids and members of the subfamily Conecephalinae. Closely related, the subfamily Phaneropterinae contains the grasshopper species *S. texensis*, also a katydid (Zhang et al. 2013). More investigation would be necessary to determine whether the fungal communities within the gut are dominated by the relationship between phylogeny and the microbial symbionts of grasshoppers or the diet of the different grasshopper species as a result of their evolutionary relationships.

Further exploration of the microbiome suggests that changes to the communities within the microbiome can result in changes of fitness of the species in question. The diversity of the microbiome is greatly affected by the environment of the species, specifically

whether the species is wild or surviving in a laboratory setting or an altered environment. It has been suggested that species with less rich and diverse microbes seem to struggle with overall fitness in an altered, degraded habitat. Studying the communities within the microbiome can also give more insight to a species' dietary preferences to help conserve and protect the necessary habitats and food sources (Bahrndorff et al. 2016). Overall, a better understanding about the grasshopper gut microbiome can provide insight to host ecology and fungal functions that could lead to increased conservation and improved pest management techniques.

Reflection

For my thesis and capstone project, I knew I wanted to combine both math and science to create a unique project that would suit my interests. I never imagined myself working with data about grasshoppers, but not only did this project provide the perfect balance between science and math, I found myself pushed out of my comfort zone and challenged by the level of analysis used for this project. Coming from a strong mathematical background, I felt comfortable working with R at a basic level. I understood a lot of the statistical analysis that went into calculating p-values and significance levels and was confident in my ability to analyze standard datasets. However, the capabilities of R are endless. Using R to analyze the data was both frustrating and satisfying. The feeling of successfully running code was like winning the lottery. After lines and lines of code and mistakes, actually producing figures and finding results was so exciting. Furthermore, the dataset that I was working with was compositional data. In my past experiences, I had always worked with standard datasets involving samples and parameters for each sample. Expanding my knowledge by working with a compositional dataset was very new and exciting, especially because of the extensivity of the data. I was juggling multiple data sheets, the largest being 185 columns wide. With the help of Dr. Chen and Dr. Sun, I was able to use creative ways to analyze the compositional data at different taxonomic levels in R and connect these mathematical findings with scientific hypotheses and findings that have been made available by researchers. Furthermore, through performing research, I was able to practice reading and critically analyzing research papers, working in teams to problem solve and think about many different scientific topics, and presenting my research in a variety of different ways. I presented my project at the University of Dayton Stander Symposium in 2019 and 2020. I also applied, was accepted, and presented at the Ecological Society of America Conference in the summer of 2019 in Louisville, Kentucky. Learning more about statistics, methods of data analysis, and statistical programs were goals of mine throughout college. As an aspiring public health professional, I knew these tools were crucial to my future career path and would be beneficial moving forward into graduate school.

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Appendix

Acknowledgments

I want to thank Dr. Chelse Prather for providing the data used in this experiment and being supportive throughout the duration of the project.

Melani Muratore, a University of Dayton graduate student, also played a significant role in the development and execution of this project. For her graduate thesis, Melani studied the bacterial components of the grasshopper gut microbiome. She helped introduce me to the dataset and capabilities of R programming. I cannot thank her enough for taking time out of her busy schedule to answer questions, share code, and just constantly be helpful.

I also want to thank Michaela Woods for sharing R code and helping me improve my R coding abilities.

Thank you to Dr. Chen from the University of Dayton Mathematics Department for being an awesome co-advisor for this project. She was always willing to meet to discuss coding and troubleshoot problems. R can be tricky to work with, and Dr. Chen provided me with the tools to improve my coding abilities, which will continue on with me as I apply my knowledge and experience with R to other subjects in the future.

I want to give a huge thank you to Dr. Yvonne Sun. She made me excited about the prospect of working on research and introduced me to her research lab. Not only was she an excellent advisor for this project, but she was also a mentor throughout my college career. She helped me find opportunities to grow as a student and find my passions. It is because of the opportunities she brought to me that I am committed to a graduate program of public health in epidemiology for the fall of 2020.

Thank you to the UD Honors Program for the opportunity to perform research.

Presentations/Posters

University of Dayton Stander Symposium, April 2019

Ecological Society of America Conference, August 2019

University of Dayton Honors Student Symposium, March 2020

University of Dayton Stander Symposium, April 2020

R Code

```
#####NMDS by Sex
NMDSp<-read.csv("C:/Users/seitz/Documents/Fungi_Species_Edit_Sex.csv")
NMDSp

NMDSp_Matrix = NMDSp[c(8:166)]
row.names(NMDSp_Matrix) = NMDSp$Sites
NMDSp_Matrix

install.packages("vegan")
library(vegan)
library(scatterplot3d)

NMDSp_NMDS = metaMDS(NMDSp_Matrix, k=2, trymax=100)
stressplot(NMDSp_NMDS)
plot(NMDSp_NMDS)

ordiplot(NMDSp_NMDS, type="points", display="sites", cex=1.25)
orditorp(NMDSp_NMDS, display="sites", col="red", air=0.01)
#orditorp(NMDSp_NMDS, display="species", col="darkblue", air=0.01)
ordiellipse(NMDSp_NMDS, groups=NMDSp$Sex, draw="polygon",
col=c("red","blue"), label=F)
####label=T makes the tags on the ellipses
#####adding a legend

legend("bottomleft", legend = c("f","m"), pch = 1:2,
      col=c("red","blue"))

#####NMDS by Species with Fungi_Species_Edit sheet
NMDSp<-read.csv("C:/Users/seitz/Documents/Fungi_Species_Edit.csv")
NMDSp

NMDSp_Matrix = NMDSp[c(7:165)]
row.names(NMDSp_Matrix) = NMDSp$Sites
NMDSp_Matrix

library(vegan)
```

```

library(scatterplot3d)

NMDSp_NMDS = metaMDS(NMDSp_Matrix, k=2, trymax=100)
stressplot(NMDSp_NMDS)
plot(NMDSp_NMDS)

ordiplot(NMDSp_NMDS, type="points", display="sites", cex=1.25)
orditorp(NMDSp_NMDS, display="sites", col="red", air=0.01)
#orditorp(NMDSp_NMDS, display="Sex", col="darkblue", air=0.01)
ordiellipse(NMDSp_NMDS, groups=NMDSp$Species, draw="polygon",
col=c("red", "orange", "yellow", "green", "blue", "purple"), label=F)
####label=T makes the tags on the ellipses
#####adding a legend

legend("bottomleft", legend = c("cf", "cs", "pa", "oc", "ov", "st"), pch =
1:2,
      col = c("red", "orange", "yellow", "green", "blue", "purple"))

### diversity index (SPECIES SHEET)
library(vegan)
fungsp<-read.csv("C:/Users/seitz/Documents/Fungi_Species_Edit.csv")
fungsp_matrix = fungsp[c(7:165)]
fungsp_div<-diversity(fungsp_matrix)
plot(fungsp_div)

## export diversity data into new sheet (SPECIES SHEET)
write.csv(fungsp_div, "shannon_div.csv")

make.sorted.plot <- function(x){
  ordered <- sort(x, T)
  plot(
    ordered,
    col = terrain.colors(10),
    xaxt = "n", pch = 16, cex = 2,
    ylim = c(min(ordered)*0.5, max(ordered)),
    xlim = c(0, length(x)+1),
    ylab = "Diversity measure", xlab = "Samples",
    main = substitute(x))
  text(ordered,
       names(ordered),
       srt = -75,
       pos = 4)
}
make.sorted.plot(fungsp_div)

## jaccard distance (SPECIES SHEET)
fungsp_jaccard <- vegdist(fungsp_matrix, method = "jaccard")

# plot jaccard distance (SPECIES SHEET)
plot(
  hclust(fungsp_jaccard),
  hang = -1,
  main = "Sites clustered by Jaccard similarity",
  axes = FALSE, ylab = "")

```

```

)

fung_div<-
read.csv("C:/Users/seitz/Documents/Fungi_Species_Shannon_Diversity.csv"
)

library(tidyverse)

### plot for (SPECIES SHEET) shannon diversity vs. species
ggplot(data = fung_div, mapping = aes(x = Species, y = shannon_div,
color = Species))+
  geom_boxplot()+
  geom_jitter(width=0.03)+
  theme(panel.grid.major=element_blank(),
panel.grid.minor=element_blank(), panel.background = element_blank(),
panel.border = element_rect(fill=NA, color="black"))

### plot for (SPECIES SHEET) shannon diversity vs. sex
ggplot(data = fung_div, mapping = aes(x = Sex, y = shannon_div, color =
Sex))+
  geom_boxplot()+
  geom_jitter(width=0.03)+
  theme(panel.grid.major=element_blank(),
panel.grid.minor=element_blank(), panel.background = element_blank(),
panel.border = element_rect(fill=NA, color="black"))

### tests for SPECIES
hist(fung_div$shannon_div)
shapiro.test(fung_div$shannon_div)

var.test(fung_div$shannon_div~fung_div$Species)

kruskal.test(fung_div$shannon_div~fung_div$Species)

### tests for SEX
hist(fung_div$shannon_div)
shapiro.test(fung_div$shannon_div)

var.test(fung_div$shannon_div~fung_div$Sex)

kruskal.test(fung_div$shannon_div~fung_div$Sex)

### Species richness graph

richness<-
read.csv("C:/Users/seitz/Documents/Fungi_Species_Shannon_Diversity.csv"
)

ggplot(data=richness, mapping=aes(x=Species, y=Richness, color = Sex))+
  geom_boxplot()+
  geom_jitter(width=0.01)+
  theme(panel.grid.major=element_blank(),
panel.grid.minor=element_blank(), panel.background = element_blank(),
panel.border = element_rect(fill=NA, color="black"))+
  theme_classic(base_size=25)

```

```

### Shannon diversity graph

richness<-
read.csv("C:/Users/seitz/Documents/Fungi_Species_Shannon_Diversity.csv"
)

ggplot(data=richness, mapping=aes(x=Species, y=shannon_div, color =
Sex))+
  geom_boxplot()+
  geom_jitter(width=0.01)+
  theme(panel.grid.major=element_blank(),
panel.grid.minor=element_blank(), panel.background = element_blank(),
panel.border = element_rect(fill=NA, color="black"))+
  theme_classic(base_size=25)

### relative abundance graphic for SEX

relabfun=read.csv("C:/Users/seitz/Documents/Fungi_Class_SexStkdAb.csv")
head(relabfun)
rownames(relabfun)=relabfun$Sex
rownames(relabfun)

#####secondarymatrix with treatment info
datafunstac=relabfun[,c(1)]
head(datafunstac)
#####take treatment info out of data to create matrix
funord.abund=relabfun[,c(1)]
head(funord.abund)
#####transpose rows and columns
funordstac.data=t(funord.abund)
head(funordstac.data)

par(mar=c(5,5,2,15), xpd=TRUE)
barplot(funordstac.data, las=1, cex.axis=1.3, ylab="Relative
Abundance", xlab="Grasshopper Sex", cex.lab=1.8,
      col=c("hotpink", "lavender", "maroon", "mediumorchid1", "navy",
"deepskyblue",
      "lightgreen", "yellow", "orange", "firebrick1",
(dim(funordstac.data)[1])))

###add legend
legend("topright", inset=c(-0.5,0),
legend=rev(c(rownames(funordstac.data))),
      fill=rev(c("hotpink", "lavender", "maroon", "mediumorchid1",
"navy", "deepskyblue",
      "lightgreen", "yellow", "orange", "firebrick1",
(dim(funordstac.data)[1]))), title="Fungal Taxa")

### relative abundance graphic for SPECIES

relabfun=read.csv("C:/Users/seitz/Documents/Fungi_Class_SpeciesStkdAb.c
sv")
head(relabfun)

```

```

rownames(relabfun)=relabfun$Species
rownames(relabfun)

#####secondarymatrix with treatment info
datafunstac=relabfun[,c(1)]
head(datafunstac)
#####take treatment info out of data to create matrix
funord.abund=relabfun[,-c(1)]
head(funord.abund)
#####transpose rows and columns
funordstac.data=t(funord.abund)
head(funordstac.data)

par(mar=c(5,5,2,15), xpd=TRUE)
barplot(funordstac.data, las=1, cex.axis=1.3, ylab="Relative
Abundance", xlab="Grasshopper Species", cex.lab=1.8,
       col=c("hotpink", "lavender", "maroon", "mediumorchid1", "navy",
             "deepskyblue",
             "lightgreen", "yellow", "orange", "firebrick1",
             (dim(funordstac.data)[1]))))

###add legend
legend("topright", inset=c(-0.5,0),
       legend=rev(c(rownames(funordstac.data))),
       fill=rev(c("hotpink", "lavender", "maroon", "mediumorchid1",
                 "navy", "deepskyblue",
                 "lightgreen", "yellow", "orange", "firebrick1",
                 (dim(funordstac.data)[1])))), title="Fungal Taxa")

```

Supplemental Materials

1. Permission for Use of Data from Dr. Chelse Prather
2. Data Files
 - a. Fungi_Species_Shannon_Diversity.csv
 - b. Fungi_Species_Edit_Sex.csv
 - c. Fungi_Species_Edit.csv
 - d. Fungi_Class_SexStkdAb.csv
 - e. Fungi_Class_SpeciesStkdAb.csv



To Honors Program,

I'm writing to give permission for Staci Seitz to use the high throughput DNA sequencing results obtained as part of my 2017 STEM Catalyst grant. Staci will be focusing on the fungal communities within the dataset and helping us identify ecological drivers of fungal diversity inside grasshopper guts.

Thank you.

A handwritten signature in black ink that reads "Chelse Prather".

Chelse Prather, Ph.D.

Fungi_Species_Shannon_Diversity.csv

ID	New_ID	Species	Sex	shannon_div	Richness
17	1	ov	m	2.377802246	33
18	2	ov	f	1.007609274	18
19	3	ov	f	2.106828527	41
20	4	ov	m	2.291816571	35
21	5	ov	m	2.250600106	12
22	6	ov	m	2.291065215	23
23	7	ov	f	0.131124667	10
24	8	ov	f	2.328021177	34
25	9	ov	m	2.082093216	29
26	10	ov	f	2.488857094	29
27	11	ov	f	2.204180468	46
28	12	ov	m	1.300783561	12
29	13	ov	f	0.586420566	29
30	14	ov	f	2.308187334	46
31	15	ov	f	2.809271123	40
32	16	ov	f	0.197107203	8
33	17	ov	m	0.976221777	8
34	18	ov	f	2.531245409	16
35	19	ov	f	2.304415413	42
36	20	ov	f	2.969931667	43
37	21	ov	f	1.390477551	24
38	22	ov	m	1.879863059	25
39	23	ov	m	2.120002726	11
40	24	ov	f	2.619230548	51
41	25	ov	m	2.406784524	19
42	26	ov	m	2.441347805	16
43	27	ov	m	0.746440397	21
44	28	ov	m	2.037354176	22
45	29	ov	m	2.315987845	42
46	30	ov	f	0.042003133	7
47	31	ov	m	2.0377063	26
48	32	cs	m	1.402853618	12
49	33	st	f	0.224746507	10
51	34	cf	m	0.441002668	13
52	35	cs	m	1.406473419	16
53	36	st	f	0.115068366	6
55	37	cs	m	2.189417486	27
56	38	oc	f	1.716313046	19
57	39	pa	m	1.062252737	26
58	40	oc	f	0.542797253	16
59	41	oc	m	1.159233312	21
60	42	pa	m	0.432256749	22
61	43	st	f	2.206292458	28

62	44 cs	f	1.750752345	35
65	45 ov	m	2.227445366	25
66	46 cf	f	2.450047901	30
68	47 cf	m	1.599481524	8
69	48 oc	f	2.668931462	35
70	49 oc	f	0.103328911	6
71	50 cs	f	2.015810026	27
72	51 oc	m	2.597714545	25
73	52 oc	m	0.863165581	13
74	53 cs	m	1.653740957	32
76	54 pa	m	0.44933283	21
77	55 pa	f	1.610055446	24
78	56 cs	m	2.664931413	23
79	57 oc	m	2.001405845	18
80	58 oc	f	1.374247476	15
81	59 cs	f	2.185987806	32
82	60 st	f	2.668130494	41

Fungi_Species_Edit_Sex.csv

ID	New_ID	Species	Sex	Treatment	addedNA	Richness	Unassigned
66	46	cf	f	NA	y	30	0.051114
62	44	cs	f	NPNA	y	35	0.010501
71	50	cs	f	NP	n	27	0.003014
81	59	cs	f	NPNA	y	32	0.052189
56	38	oc	f	NP	n	19	0.031562
58	40	oc	f	NA	y	16	0.896196
69	48	oc	f	NP	n	35	0.010387
70	49	oc	f	NP	n	6	0
80	58	oc	f	NPNA	y	15	0.043887
18	2	ov	f	NPCA	n	18	0.769787
19	3	ov	f	NPCANA	y	41	0.107565
23	7	ov	f	NPK	n	10	0.000768
24	8	ov	f	CANA	y	34	0.050641
26	10	ov	f	CANA	y	29	0.046887
27	11	ov	f	NPCA	n	46	0.151238
29	13	ov	f	CA	n	29	0.001291
30	14	ov	f	NPCANA	y	46	0.075422
31	15	ov	f	NPCAKNA	y	40	0.02726
32	16	ov	f	NPCAKNA	y	8	0.96494
34	18	ov	f	K	n	16	0.182534
35	19	ov	f	CAKNA	y	42	0.020204
36	20	ov	f	CONTROL	n	43	0.053479
37	21	ov	f	NP	n	24	0.024407
40	24	ov	f	CONTROL	n	51	0.061745
46	30	ov	f	NP	n	7	0.99468
77	55	pa	f	KNA	y	24	0.461947
49	33	st	f	NP	n	10	0.962636
53	36	st	f	NPNA	y	6	0.981343
61	43	st	f	NA	y	28	0.057404
82	60	st	f	NPNA	y	41	0.036656
51	34	cf	m	NP	n	13	0.914823
68	47	cf	m	NPNA	y	8	0.34477
48	32	cs	m	CONTROL	n	12	0.146493
52	35	cs	m	NP	n	16	0.442537
55	37	cs	m	NA	y	27	0.012341
74	53	cs	m	NPNA	y	32	0.043437
78	56	cs	m	CONTROL	n	23	0.173032
59	41	oc	m	NA	y	21	0.125309
72	51	oc	m	CONTROL	n	25	0.076619
73	52	oc	m	NPNA	y	13	0.002782
79	57	oc	m	NPNA	y	18	0
17	1	ov	m	K	n	33	0.307317
20	4	ov	m	CA	n	35	0.337458
21	5	ov	m	CAKNA	y	12	0.095975
22	6	ov	m	KNA	y	23	0.369109
25	9	ov	m	NPKNA	y	29	0.109451

28	12 ov	m	KNA	y	12	0.67887
33	17 ov	m	NPK	n	8	0.699993
38	22 ov	m	NPNA	y	25	0.137897
39	23 ov	m	NA	y	11	0.042924
41	25 ov	m	NA	y	19	0.131378
42	26 ov	m	NPNA	y	16	0.122555
43	27 ov	m	NP	n	21	0.854005
44	28 ov	m	CONTROL	n	22	0.03305
45	29 ov	m	NPNA	y	42	0.015865
47	31 ov	m	NA	y	26	0.079012
65	45 ov	m	NA	y	25	0.008088
57	39 pa	m	CONTROL	n	26	0.787705
60	42 pa	m	CONTROL	n	22	0.930163
76	54 pa	m	NA	y	21	0.922329

k__Fungi;C	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p
0.004175	0.004187	0.008913	0	0	0.002397	0	0.23904
0	0.004505	0.029624	0	0	0.001204	0.000814	0.206493
0	0.002738	0.010505	0	0	0.000326	0.000781	0.040529
0.000324	0.001097	0.006521	0	0	0.000293	0	0.196675
0	0	0.002604	0	0	0	0	0.005313
0	0	0.000814	0	0	0.019205	0	0.001848
0	0.027538	0.065757	0	0	0.000682	0.00614	0.170686
0	0	0	0	0	0	0	0.001551
0	0	0.003035	0	0	0	0	0.014566
0	0.003912	0.021068	0	0	0	0	0.010231
0	0.002588	0.017139	0	0	0.000594	0.0007	0.161507
0	0	0.001056	0	0	0	0	0.001488
0	0.013664	0	0	0	0.00132	0.002479	0.033089
0	0.025315	0.105425	0	0	0.001928	0	0.059237
0	0.018266	0.036637	0	0	0.00152	0.000655	0.016549
0	0.003028	0.003274	0	0	0	0.000476	0.005426
0.002555	0.070028	0.018602	0	0	0.004572	0.005334	0.043329
0	0.058051	0.024773	0	0	0.004574	0	0.01266
0	0	0	0	0	0	0	0.010408
0	0	0	0	0	0.043579	0.048289	0.041825
0	0.003995	0.009759	0	0	0.008104	0.005593	0.049282
0.009316	0.007617	0.018733	0	0	0.010376	0.004898	0.044982
0	0.070704	0.020961	0	0	0	0	0.015899
0.003253	0.010893	0.070277	0	0	0.002026	0.003565	0.066723
0	0	0	0	0	0	0	0.001154
0	0.028823	0.000914	0.006574	0	0	0	0.01132
0	0.001375	0.002759	0	0	0	0	0.006415
0	0	0.001716	0	0	0	0	0.00277
0	0.032062	0.006756	0	0	0.001143	0	0.069059
0	0.005754	0.007183	0	0	0.001132	0.000893	0.030509
0	0.00247	0	0	0	0	0	0.017451
0	0	0	0	0	0	0	0.063598
0	0	0.046813	0	0	0	0	0.360347
0	0	0.010617	0	0	0	0	0.169335
0	0.002609	0	0	0	0	0	0.024532
0	0.004632	0.004653	0	0	0.000442	0	0.033015
0	0	0	0	0	0	0	0.069981
0	0.003842	0.005088	0	0	0	0	0.019317
0	0.010056	0	0	0	0.012251	0	0.06095
0	0	0	0	0	0	0	0.001722
0	0	0.002641	0	0	0	0	0.03355
0	0.002221	0.020977	0	0	0.004072	0	0.065801
0	0.003299	0.020445	0	0	0	0	0.08122
0	0.04644	0	0	0	0	0	0.089164
0	0.072038	0.016969	0	0	0	0	0.05896
0	0.000994	0.014397	0	0	0	0	0.033558

0	0.016192	0	0	0	0	0	0.02464
0	0	0.009357	0	0	0	0	0.030813
0	0.003523	0.007152	0	0	0	0	0.031867
0	0.141488	0	0	0	0.051896	0	0.101953
0	0.015856	0.039103	0	0	0.021102	0	0.141392
0	0.102157	0	0	0	0	0	0.01789
0	0.00355	0.000439	0	0	0.00182	0	0.013488
0	0.002548	0.049485	0.172031	0	0	0	0.032512
0	0.003595	0.071763	0	0	0.000742	0.000997	0.141787
0	0.007499	0.003034	0	0.004913	0	0	0.153876
0	0	0.037389	0	0	0	0	0.136786
0	0.005573	0.058205	0	0	0.002368	0	0.003405
0	0.004901	0	0.004175	0	0.001229	0	0.012955
0	0.003512	0.000718	0.000855	0	0	0	0.006762

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p								
0	0	0	0	0	0	0	0	0
0	0.000825	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0.001816	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0.002221	0	0	0.002291	
0	0	0	0	0.00076	0	0	0	
0	0	0	0	0.000369	0	0	0	
0	0.000896	0.000717	0	0.022337	0.002002	0	0.017107	
0	0.001131	0	0	0.055369	0.002848	0	0.068038	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0.033816	0	0	0.045829	
0.010496	0	0	0.002239	0.006417	0.004238	0	0.004278	
0	0	0	0	0	0	0	0.000606	
0	0	0	0	0.024228	0	0	0.012247	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0.001501	0	0.002776	0.000691	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0.000611	0	0	0	
0	0	0	0	0	0	0	0.025594	
0	0.001018	0	0	0	0	0	0	
0.012035	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0.001379	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0.00072	0	0	0	0	

0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.030466	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0.003624	0	0	0.004019	0	0	0
0	0	0	0	0.001183	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.00447
0	0	0	0	0	0	0	0
0	0.000415	0	0	0.001347	0	0	0
0	0	0	0	0	0	0	0

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p							
0.205969	0.022999	0	0.007215	0	0.017986	0	0
0.480316	0.018274	0	0	0	0.002373	0	0.000344
0.039136	0.031674	0	0	0	0.000544	0	0
0.228632	0.002822	0.001066	0	0	0.006396	0	0
0.275439	0	0	0	0	0	0	0
0.008569	0.018677	0	0	0	0	0	0
0.064475	0.010069	0	0	0	0.086578	0	0
0.011825	0	0	0	0	0	0	0
0.204036	0.024428	0	0	0	0.003262	0	0
0.104011	0	0	0	0	0	0	0
0.391263	0.006804	0	0.001598	0	0.006728	0	0
0.01027	0	0	0	0	0.000552	0	0
0.256917	0.211109	0	0.018284	0	0	0	0
0.196613	0.025707	0	0.002082	0	0.017464	0	0
0.079065	0.001297	0	0	0	0.044879	0	0
0.028865	0.000646	0	0	0	0	0	0
0.361168	0	0	0	0	0.089362	0	0.000463
0.086374	0.006652	0	0	0	0.123133	0	0
0.017757	0	0	0	0	0.003532	0	0
0.126805	0.064018	0	0	0	0	0	0
0.454099	0.008333	0	0.024427	0	0.072654	0	0
0.094022	0.041823	0	0.003279	0	0.002479	0	0
0.030869	0.010487	0	0	0	0.001104	0	0
0.353653	0.03592	0	0.013787	0	0.038027	0	0.000833
0.001811	0	0	0	0	0	0	0
0.008185	0.020768	0	0	0	0.130399	0	0
0.015599	0.004363	0	0	0	0	0	0
0.01118	0.002207	0	0	0	0	0	0
0.245102	0.029663	0	0.001168	0	0.00216	0	0.000527
0.13477	0.156118	0	0.000929	0	0.003717	0	0
0.034873	0.004939	0	0	0	0	0	0
0.36318	0	0	0	0	0	0	0
0.378302	0.003202	0	0	0	0	0	0
0.2971	0.005139	0	0	0	0	0	0
0.139465	0.012993	0	0	0	0.032592	0	0
0.631069	0.043711	0	0	0	0.004611	0	0
0.085026	0	0	0	0	0.016558	0	0
0.114659	0.016651	0	0.000597	0	0	0	0
0.32128	0	0	0	0	0.024736	0	0
0	0.001954	0	0	0	0	0	0
0.170283	0.035334	0	0	0	0.102755	0	0
0.24636	0.008514	0	0.005892	0	0.020823	0	0
0.189854	0.018581	0	0.002591	0	0.001305	0	0
0.268111	0	0	0	0	0.040248	0	0
0.16283	0.016645	0	0.00508	0	0	0	0
0.122819	0.07435	0	0.002057	0	0.000754	0	0

0.113447	0.030172	0	0	0	0.028261	0	0
0.061112	0	0	0	0	0.001097	0	0
0.094987	0	0	0	0	0	0	0
0.190382	0	0	0	0	0	0	0
0.15546	0.042918	0	0	0	0	0	0
0.050493	0.059522	0	0	0	0.111854	0	0
0.039574	0.008984	0	0	0.003007	0	0	0
0.083576	0.171744	0	0	0	0.312771	0	0
0.405553	0.02897	0	0	0	0.025189	0.002714	0
0.345611	0	0	0	0	0.017268	0	0
0.370557	0.017027	0	0	0	0	0	0
0.035354	0.009497	0	0.013833	0	0.004988	0	0
0.011844	0.001347	0	0.00345	0	0.010023	0	0
0	0.002452	0	0	0	0.014916	0	0

[illegible]

0	0	0	0	0	0.023333	0	0
0	0.175418	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.062191	0	0	0	0	0.260416	0	0
0	0	0	0	0.01526	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.000825
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.001821	0	0
0	0	0	0	0	0	0	0

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p								
0.002937	0	0	0	0	0	0	0	0
0	0	0	0	0	0.020853	0	0.000275	0
0	0	0	0	0	0.005633	0	0.000247	0
0	0	0	0	0	0.01509	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0.014281	0	0.002694	0
0	0	0	0	0	0.000951	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.008652	0
0.001431	0	0	0	0	0.004018	0.001005	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0.002943	0	0	0.000803
0	0	0	0	0	0	0	0	0
0.000524	0	0	0.008478	0.011714	0	0	0	0
0	0	0	0	0.00747	0	0.000953	0	0
0	0	0	0	0	0.000403	0.024697	0	0
0	0	0.036526	0.00118	0.001756	0	0.173079	0.001404	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0.027808	0	0	0	0
0	0	0	0.001741	0.006934	0	0.002968	0	0
0.013635	0	0	0.017553	0	0	0.007177	0	0
0	0	0	0	0	0	0	0	0
0	0.002743	0	0	0.001227	0	0.002257	0.001574	0
0	0	0	0	0.000609	0	0	0	0
0	0.00148	0	0	0.267807	0	0	0	0
0	0	0	0	0	0	0	0.000468	0
0	0	0	0	0	0	0.000785	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.000715	0.000762	0
0	0	0	0	0	0	0	0	0
0.021757	0	0	0	0	0	0	0	0
0	0	0	0	0.001888	0	0	0	0
0	0	0	0	0.000373	0	0.030953	0	0
0	0	0	0	0	0	0.015334	0	0
0	0	0	0.001032	0.011496	0	0	0	0
0	0	0	0	0.091034	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.01763	0.005451	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0.014669	0	0	0	0
0	0	0	0	0.00725	0	0.005429	0	0
0	0	0	0	0.002199	0.001267	0.003056	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0.008431	0	0	0	0
0	0	0	0	0.009598	0	0.026086	0	0

0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.056285	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0.001758	0	0	0.003409	0	0	0
0	0	0	0.005636	0	0.001902	0.002644	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.005676	0
0	0.00423	0	0	0.01217	0	0	0
0	0	0	0	0	0	0	0.001851
0	0	0	0	0.020595	0	0	0

k_Fungi;p_k_Fungi;p_k_Fungi;p_k_Fungi;p_k_Fungi;p_k_Fungi;p_k_Fungi;p_k_Fungi;p								
0	0	0	0	0	0	0.010909	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0.001142	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0.003199	
0.001494	0.004455	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0.095981	0	0	0.003531	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0.004024	0	0	0.002026	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0.001262	0	0.001181	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0.008314	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0.002715	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0.002702	0	0	0	
0	0	0	0	0	0	0	0	

[illegible]

[illegible]

0	0	0	0	0	0	0	0
0	0.020428	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.001175	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.000696	0	0
0	0	0	0	0	0.001821	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p								
0	0	0	0	0	0	0.00725	0	
0	0	0	0	0	0	0.004872	0	
0	0	0	0	0	0	0.004803	0	
0	0	0	0.004556	0	0	0.017201	0	
0.008933	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0.070705	0	
0	0	0	0	0.009892	0	0	0	
0	0	0	0	0	0	0.004795	0	
0	0	0	0	0	0	0.980012	0	
0	0.003032	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0.005792	0	
0	0	0	0	0	0	0.001783	0	
0	0	0.001718	0.00245	0	0	0.001569	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0.00077	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0.001263	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0.004659	0	
0	0.000882	0	0	0	0	0.039324	0.019525	
0	0	0	0	0	0	0.009758	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0.003528	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0.002274	0.069525	0	
0	0	0	0	0	0	0.037797	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0.031068	0	
0	0	0	0	0	0	0.248054	0	
0	0	0	0	0	0	0.135306	0	
0	0.001388	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0.420697	0	

0	0	0	0.015187	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.00253	0
0	0	0	0	0	0	0	0
0	0	0	0.00116	0	0	0.072227	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.002208	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

[illegible]

0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.00312
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.001239
0	0	0	0	0	0	0	0.003014
0	0	0	0	0	0	0	0.001206
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.000415
0	0	0	0	0	0	0	0

[illegible]

0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.0156
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.004173
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.00334	0	0	0	0	0.00116	0.000533	0
0	0	0	0	0	0.003901	0	0
0	0	0	0	0	0.002128	0	0
0	0.017251	0	0	0	0	0	0
0	0	0	0	0	0	0.000785	0
0	0	0.001197	0	0	0	0	0

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p	0	0	0	0	0.000551	0	0	0
	0	0	0	0	0.000264	0	0	0
	0	0	0	0	0	0	0	0
0.002728	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.025804
	0	0	0	0	0	0	0	0
0.003882	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
0.002124	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
0.010441	0	0	0	0	0	0.00102	0	0.012024
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
0.002896	0	0	0	0	0	0	0	0.001337
0.001168	0	0	0	0	0	0	0	0
	0	0.001838	0	0	0	0	0	0.005528
0.001287	0.001268	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
0.006906	0.003596	0.002369	0	0	0	0	0	0
	0	0	0	0	0.009216	0	0	0
0.000296	0	0	0	0	0	0	0	0
0.005556	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
0.000914	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.006397
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.001849
0.004933	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
0.01707	0	0	0	0	0	0	0.009502	0
0.002386	0	0	0	0	0	0	0	0.003106
	0	0	0.011316	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
0.012432	0	0	0	0	0	0	0	0
0.017425	0	0	0	0	0	0	0	0
	0	0	0.036533	0	0	0	0	0
0.020104	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0

0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.013374	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0.017221	0	0	0	0	0
0.001045	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.09391
0	0	0.001322	0	0	0	0	0
0.014421	0	0	0.008843	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.002128
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p	k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p	k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p	k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p	k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p	k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p	k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p	k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p
0.001732	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.000484	0	0	0	0	0	0	0
0.001923	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.000429	0	0	0	0	0	0	0
0.022021	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.003212	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.001481	0	0	0	0	0	0	0
0.001441	0	0	0	0	0	0	0
0.000738	0	0	0	0	0	0	0
0.000329	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.071783	0	0	0	0	0	0	0
0.004737	0	0	0	0	0	0	0
0.004958	0	0	0	0.005158	0	0.005198	0
0	0	0	0	0	0	0	0
0.001239	0	0	0	0.001551	0	0	0
0	0	0	0	0	0	0	0
0.001263	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.003843	0	0	0	0	0	0	0
0.001989	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.001104	0	0	0	0	0	0	0.001672
0.002569	0	0.001348	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.015597	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.003336	0	0	0	0	0	0	0
0	0	0.04582	0	0	0	0	0
0	0	0	0	0	0	0	0
0.000891	0	0	0	0	0	0	0

0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.002945	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.017525	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0.008025	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0.001463	0	0	0	0	0	0
0.001332	0.001614	0	0	0	0	0	0
0.000285	0	0	0	0	0	0	0

k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p
0	0	0	0	0	0	0	0
0.001422	0	0	0.000241	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.000614	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.007352	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.00032
0	0	0	0	0	0	0	0
0.000999	0	0	0.000785	0	0	0	0
0	0	0	0	0	0	0	0
0.004324	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.000673	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0.003339	0	0	0	0	0
0	0.004578	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.02358	0.000556	0	0	0	0	0	0.001748
0	0	0	0	0	0	0	0
0.001219	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.030962	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.003749	0	0	0	0	0	0	0
0.000632	0	0	0	0	0	0	0
0	0.021786	0	0	0	0	0	0.008635
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.005244	0	0	0	0	0.00509	0.004596	0
0.004827	0	0	0.001118	0	0	0	0
0.087926	0	0	0	0	0	0	0
0.049773	0	0	0	0	0	0	0
0.001611	0	0	0.001748	0	0	0	0

0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.002612	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0.02207	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.000974	0	0	0	0	0	0	0
0.001705	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.000878	0	0	0	0	0	0	0.002115
0.000518	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p	0	0	0	0	0	0.015669	0	0.004485
	0	0	0	0	0	0	0	0.001204
	0	0	0	0	0	0	0	0.000395
	0	0	0	0	0	0.001494	0	0.002999
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0.000781	0	0.000649
	0	0	0	0	0	0.019068	0.002423	0.042536
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0.015601	0	0.001963
	0	0	0	0	0	0	0	0
	0	0.001213	0	0	0	0.004888	0	0
	0	0	0	0	0	0.009067	0	0
	0	0.00038	0	0	0	0.002372	0	0.000616
	0	0	0	0	0	0	0	0.001675
	0	0	0	0	0	0.000329	0	0.000642
	0	0	0	0	0	0.004721	0	0.000995
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.020453
	0	0.001712	0	0	0	0.092886	0	0.002854
	0	0	0	0.002359	0	0.047381	0	0.008557
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0.004387	0	0.004561
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0.002173	0	0.001231
	0	0	0	0	0	0	0	0.002597
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.00204
	0	0	0	0	0	0	0	0.001116
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0.001211	0	0
	0	0	0.025707	0	0	0	0	0.022793
	0	0.000762	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.00075
	0	0.005491	0	0	0.004566	0.010921	0	0
	0	0	0	0	0	0.009915	0	0
	0	0	0	0	0	0.016718	0	0
	0	0.0107	0	0	0	0	0	0
	0	0	0	0	0	0	0	0

0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.01213	0	0.00163
0.035759	0.026239	0	0	0	0	0	0
0	0	0	0	0	0.020386	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.001508	0	0.00116
0	0	0	0	0	0.006343	0	0
0	0	0	0	0	0.004257	0	0
0	0	0	0	0	0.005108	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p								
0.008615	0	0	0	0	0.002661	0	0	
0.001181	0	0	0	0	0.002534	0	0	
0	0	0	0	0	0.126944	0	0	
0.005654	0	0	0	0	0.048009	0	0	
0.000635	0	0	0	0	0.017421	0	0	
0.006633	0	0	0	0	0	0	0	
0.058593	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0.008113	0	0	0.000928	0	0	0	0	
0	0	0	0	0	0.002256	0	0	
0.001962	0	0.035051	0	0.006564	0.001873	0	0	
0	0	0	0	0	0.001788	0	0	
0.002031	0	0.000341	0	0	0.418347	0	0	
0.000369	0	0	0	0	0	0	0	
0	0	0	0	0.000418	0	0	0	
0.005393	0	0	0	0	0	0	0.010436	
0	0	0	0	0	0.000963	0	0	
0	0	0.045008	0	0	0	0	0	
0.008361	0	0	0	0	0.004309	0	0	
0.020392	0	0	0	0	0	0.002479	0	
0	0	0.000363	0	0	0.67727	0	0	
0.00485	0	0	0	0.001331	0	0	0	
0	0	0	0	0	0.000641	0	0	
0.005094	0	0	0	0	0.004006	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0.017343	0	0	0	0.007033	0	0.000289	0	
0.003562	0	0	0.001739	0.004896	0.002633	0.002704	0	
0	0	0	0	0	0.0022	0	0	
0	0	0	0	0	0.054393	0	0	
0	0	0	0	0	0.005757	0	0	
0	0	0	0	0	0.000407	0	0	
0.005936	0	0	0	0	0	0	0	
0	0	0.002253	0	0	0.038763	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0.004737	0	0	0	
0	0	0	0	0.019627	0.011298	0	0	
0	0	0	0	0	0.697731	0	0	
0	0	0	0	0	0.007781	0	0	
0	0	0.004627	0	0	0	0	0	
0.002386	0	0	0	0	0.000671	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0.001714	0.001817	0	0	

0.017801	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.005031	0	0	0	0	0.016249	0	0
0	0	0	0	0	0	0	0
0.01061	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.001763	0	0	0	0	0.014891	0	0
0.001416	0.001604	0	0	0	0	0	0
0.005605	0	0	0	0.033487	0.017808	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.00065	0	0

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p							
0.041593	0	0	0	0	0	0	0
0.016761	0	0	0	0.000367	0	0	0
0.070632	0	0	0	0.00082	0	0	0
0.014348	0	0	0	0	0	0.001076	0
0.001101	0	0	0	0	0	0	0
0.00231	0	0	0	0	0	0	0
0.014528	0	0	0	0.012963	0	0.006058	0
0	0	0	0	0	0	0	0
0.017676	0	0	0	0	0	0	0
0.004045	0	0	0	0	0	0	0
0.010518	0	0	0	0.005616	0	0	0
0	0	0	0	0	0	0	0
0.010399	0	0	0	0.008205	0	0	0
0.069995	0	0	0	0.003088	0	0	0.003311
0.015056	0	0	0	0.001179	0	0	0
0.002767	0	0	0	0.000615	0	0	0
0.000583	0.001883	0	0	0	0	0	0
0.002399	0	0	0	0.016951	0	0	0
0	0	0	0	0	0	0	0
0.102307	0	0.024116	0	0	0	0	0
0	0	0	0	0.00682	0	0	0
0.086905	0	0	0	0.020112	0	0	0
0.002033	0	0.022751	0	0	0	0	0
0.042229	0.000532	0	0	0.013764	0	0	0
0	0	0	0	0	0	0	0
0.009317	0	0	0	0	0	0	0
0.001932	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.103519	0	0	0	0	0	0	0
0.027793	0	0	0	0.011341	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.000666	0	0	0	0	0	0	0
0.000475	0	0	0	0	0	0	0
0.039365	0	0	0.002776	0.008094	0	0	0
0.02194	0	0	0	0.001916	0	0	0
0.078272	0	0	0	0	0.003027	0	0
0.004948	0	0	0	0	0	0	0
0.085308	0	0	0	0	0	0	0
0.002782	0	0	0	0	0	0	0
0.007388	0	0	0	0	0	0	0
0.037266	0	0	0	0.007836	0	0	0
0.058184	0	0	0	0.005386	0.011685	0	0
0.107121	0	0	0	0	0	0	0
0.038478	0	0	0	0	0	0.008755	0
0.028931	0	0	0	0	0	0	0

0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.004154	0	0	0	0.001735	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0.010253	0	0	0
0	0	0	0	0.008694	0	0	0
0.00191	0	0	0	0	0	0	0
0.002584	0	0	0	0.001471	0	0	0
0.009278	0	0	0	0.001229	0	0	0
0.012557	0	0	0	0	0	0	0
0.029727	0	0	0	0.021923	0	0	0
0.003259	0	0	0	0.004083	0	0	0
0	0	0	0	0	0	0	0
0.002247	0	0	0	0.000251	0	0	0

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p							
0.026899	0	0	0	0.046388	0	0.12237	0
0.01112	0	0.019627	0	0.004437	0	0.009813	0
0.00335	0	0.318937	0	0.02781	0	0.265669	0
0.006521	0	0.000303	0	0.000972	0	0.039168	0
0.002201	0	0	0	0.001291	0	0.156707	0
0.030458	0	0	0	0	0	0.002057	0
0.230679	0	0	0	0.035831	0	0.02642	0
0	0	0	0	0.001835	0	0.000817	0
0.001176	0	0	0	0.001745	0	0.006486	0
0.014395	0.001949	0.002082	0	0	0	0.003898	0
0.010137	0.00032	0.006286	0	0.007869	0	0.019482	0
0	0	0	0	0	0	0.00072	0
0.06996	0	0.000571	0	0.044987	0	0.164321	0
0.034061	0.010646	0	0	0.030806	0	0.176984	0
0.011806	0	0.000812	0	0.002555	0	0.022721	0
0.00166	0	0.000338	0	0.002582	0	0.018844	0
0.001763	0	0.000418	0	0	0	0.001912	0
0.069852	0	0	0	0.001873	0	0.025524	0
0	0	0	0	0	0	0.000888	0
0	0	0	0	0	0	0.122915	0
0.002055	0	0	0	0	0.000828	0.033245	0
0.02497	0	0	0.00096	0.022391	0	0.244262	0
0.032942	0.0098	0.000458	0	0	0	0.055693	0
0.014493	0.000301	0.003079	0	0.035075	0	0.028187	0
0	0	0	0	0	0	0	0
0	0	0	0	0.003048	0	0.015239	0
0.000737	0	0	0	0	0	0.003715	0
0	0	0	0	0	0	0	0
0.023999	0.001733	0	0	0.052281	0	0.284272	0
0.064437	0	0.035691	0	0.060267	0	0.072359	0
0.000464	0	0	0	0	0	0.000778	0
0	0	0	0	0	0	0.061088	0
0.000463	0	0	0	0	0	0.001777	0
0.001781	0	0	0	0	0	0.002985	0
0.085184	0.002308	0.006773	0.002642	0.015217	0	0.143161	0
0.007306	0	0.01316	0	0.008633	0	0.019939	0
0.012646	0	0	0	0.042292	0	0.052212	0.015347
0.001228	0	0	0	0.001877	0	0.009668	0
0.061507	0	0	0	0.024376	0	0.049778	0
0.001192	0	0.006889	0	0	0	0.010896	0
0.018524	0	0.038939	0	0	0	0.021236	0
0.037296	0	0	0	0.009501	0	0.058243	0
0.02611	0	0	0	0.023408	0	0.082804	0
0	0	0	0	0	0	0.052632	0
0.012322	0	0	0	0.040424	0	0.035073	0
0.015562	0.001337	0.003805	0	0	0	0.073904	0

0.010761	0	0	0	0.031178	0	0	0
0	0	0	0	0	0	0	0
0.033777	0	0	0	0.001963	0	0.121665	0
0	0	0	0	0	0	0	0
0.023724	0	0	0	0.036958	0	0.077849	0
0.013208	0	0.184919	0	0.022571	0	0.136766	0
0.013488	0	0	0	0	0	0.035005	0
0.001794	0	0	0	0	0	0.018373	0
0.029967	0.001809	0	0	0.004894	0	0.033029	0
0.09732	0	0.00224	0	0.009421	0	0.183643	0
0.026747	0	0.00525	0	0	0	0.023271	0
0.009231	0	0	0	0.005134	0	0	0
0	0	0	0	0	0	0.001703	0
0.000456	0	0.010446	0	0.007082	0	0.001768	0

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p								
0	0	0	0	0	0	0	0	0.090229
0	0	0.000585	0.008587	0	0	0	0	0.132148
0	0	0	0.013727	0	0	0.013312	0.001601	
0	0	0	0.001662	0	0	0	0.060246	
0	0	0	0.001164	0	0	0.026714	0	
0	0	0	0.001144	0	0	0	0.0099	
0	0	0.00107	0.000859	0	0	0.003258	0.00207	
0	0	0	0	0	0	0.983021	0	
0	0	0	0	0	0	0	0.58749	
0	0	0	0.002318	0	0	0	0	
0	0	0.000472	0	0	0	0	0.14417	
0	0	0	0	0	0	0	0	
0	0	0.002569	0	0	0	0.00066	0	
0	0	0	0.001844	0	0	0	0.133996	
0	0	0.003001	0.001205	0	0	0.001088	0.037881	
0	0	0	0.002843	0	0	0	0.002475	
0	0	0	0	0	0	0	0.000657	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0.031429	0	0	0	0.035757	
0	0	0	0	0	0.003196	0	0.004081	
0.003758	0	0	0.014554	0	0	0	0.055098	
0	0	0	0	0	0	0	0.018012	
0	0	0	0.002385	0	0	0	0.076343	
0	0	0	0	0	0	0	0.000721	
0	0	0	0.001437	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0.004031	0	0	0	0.003416	
0	0.001072	0	0.050236	0	0	0.000762	0.189081	
0	0	0	0.000329	0	0	0	0.009279	
0	0	0	0	0	0	0	0	
0	0	0	0.000963	0	0	0	0.053329	
0	0	0	0	0	0	0	0.025373	
0	0	0.000669	0.031773	0	0	0	0.368662	
0	0	0	0.001811	0	0	0.01377	0.0012	
0	0	0	0	0.019865	0	0	0.151863	
0	0	0	0.000456	0	0	0	0.680165	
0	0	0	0	0	0	0	0.041071	
0	0	0	0.002517	0	0	0.017486	0	
0	0.001606	0	0.02145	0	0	0	0.375187	
0	0	0	0	0	0.003177	0	0.040196	
0	0	0.000932	0.002963	0	0	0	0.035075	
0	0	0	0	0	0	0	0.113313	
0	0	0.011241	0.010214	0	0	0	0.015618	
0	0	0	0.011586	0	0	0	0.023309	

0	0	0	0	0	0	0	0.010158
0	0	0	0	0	0	0	0
0	0	0.00603	0	0	0	0	0.467274
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.215784
0	0	0	0.073901	0	0	0	0
0	0.005266	0	0.00404	0	0	0.000994	0
0	0	0	0.002799	0	0	0	0
0	0	0	0.020272	0	0	0	0.024911
0	0	0.002572	0	0	0	0	0.03072
0	0	0.003335	0.028592	0	0	0.003973	0.158851
0	0	0	0.004828	0	0	0	0.001237
0	0	0	0	0	0	0	0.001969
0	0	0	0.000924	0	0	0	0

k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p
0.004497	0.001239	0.007456	0.00273	0	0	0	0.005173
0	0.000653	0.000986	0.000814	0	0	0	0
0	0.014202	0	0.001433	0	0	0	0
0	0.247578	0.000314	0.029877	0	0	0	0
0	0	0	0.015559	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0.000776	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0.005842	0.013542	0	0	0	0
0	0	0	0	0	0	0	0
0	0.000883	0.001065	0.02067	0	0	0	0
0	0	0.001176	0	0	0	0	0
0	0	0	0.010043	0	0	0.001802	0.000731
0	0	0	0	0	0	0	0
0.00097	0.000904	0.000734	0.069749	0.00325	0	0	0
0	0.000769	0.000753	0.00123	0	0.007147	0	0
0	0.002764	0.004467	0.157149	0	0.005319	0.000493	0
0.029269	0	0	0	0	0.000205	0	0
0	0	0	0.000416	0	0	0	0
0	0	0	0	0	0	0	0.011372
0.000856	0	0.002511	0.034044	0	0	0	0.008532
0.02433	0	0.002059	0.008557	0	0	0	0
0	0	0.001642	0.001992	0	0	0	0
0.000938	0.000602	0.002361	0.005753	0	0	0.000521	0
0	0	0	0	0	0	0	0.000385
0	0	0.003091	0.009666	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0.002863	0.001243	0	0	0	0
0.001441	0.001596	0	0.008637	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.0012	0	0	0.004843	0	0	0	0
0	0	0	0	0	0.006754	0	0
0	0	0.000474	0	0	0	0	0
0	0.002986	0	0	0	0	0	0
0	0	0	0.005233	0	0	0	0
0	0.006746	0	0.005853	0	0	0	0
0	0	0.001943	0.007805	0	0	0	0.005399
0	0	0.001491	0.003336	0	0	0.000634	0.00164
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.002756
0	0.00096	0	0.004868	0	0.003565	0	0

0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0.003067	0.005171	0.005101	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0.008345	0	0	0	0
0	0	0.030262	0	0	0	0	0.025915
0.002349	0	0	0.001265	0	0	0	0
0	0	0	0.001579	0	0	0	0
0.015934	0.002482	0.009811	0.021594	0	0	0	0
0	0.001373	0.004826	0	0	0	0.001994	0.002066
0	0	0.003193	0.021142	0	0.003051	0	0
0	0	0	0.001969	0	0	0	0.001782
0	0	0.005182	0	0	0	0.000962	0
0	0	0.00049	0.001562	0	0	0	0

k__Fungi;p_k__Fungi;p_k__Fungi;p_k__Fungi;p_k__Plantae;k__Plantae;p__unidentified;c__unclassified						
	0	0	0	0.032623	0	0
	0	0	0	0.004517	0	0
	0	0	0	0.000751	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0.00033	0	0
	0	0	0	0.008658	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0.009124	0	0
0.001279	0	0	0	0.003851	0	0
	0	0	0	0	0	0
	0	0	0	0.004656	0	0
	0	0	0.002361	0.025846	0	0
	0	0	0	0.001612	0	0
	0	0	0	0.001875	0	0
	0	0	0	0.000867	0	0
0.000956	0	0	0	0.001258	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
0.001027	0	0	0	0.006592	0	0
	0	0	0	0.020032	0	0
	0	0	0	0.000377	0	0
	0	0	0	0.005996	0	0
	0	0	0	0	0	0
	0	0	0	0.001916	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0.038316	0	0.002147
0.001215	0	0	0	0.003717	0	0
	0	0	0	0	0.002095	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0.023094	0	0
	0	0	0	0.003158	0	0
	0	0	0	0.057476	0	0
	0	0	0	0.002632	0	0
	0	0.026139	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0.013759	0	0
	0	0	0	0.040349	0	0
	0	0	0	0	0	0
	0	0	0	0.023617	0	0
	0	0	0	0.005245	0	0

0	0	0	0	0	0
0	0	0	0.000823	0	0.00096
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0.011922	0	0
0	0	0	0	0	0
0	0	0	0.004827	0	0
0	0	0	0.003122	0	0
0.001461	0	0	0.004824	0	0
0	0	0	0	0	0
0	0	0	0.027669	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0.000502	0	0

identified;o__unidentified;f__unidentified;g__unidentified;s__Plantae_sp

Fungi_Species_Edit.csv

ID	New_ID	Species	Sex	Treatment	addedNA	Unassigned_k__Fungi;C	
	17	1 ov	m	K	n	0.307317	0
	18	2 ov	f	NPCA	n	0.769787	0
	19	3 ov	f	NPCANA	y	0.107565	0
	20	4 ov	m	CA	n	0.337458	0
	21	5 ov	m	CAKNA	y	0.095975	0
	22	6 ov	m	KNA	y	0.369109	0
	23	7 ov	f	NPK	n	0.000768	0
	24	8 ov	f	CANA	y	0.050641	0
	25	9 ov	m	NPKNA	y	0.109451	0
	26	10 ov	f	CANA	y	0.046887	0
	27	11 ov	f	NPCA	n	0.151238	0
	28	12 ov	m	KNA	y	0.67887	0
	29	13 ov	f	CA	n	0.001291	0
	30	14 ov	f	NPCANA	y	0.075422	0.002555
	31	15 ov	f	NPCAKNA	y	0.02726	0
	32	16 ov	f	NPCAKNA	y	0.96494	0
	33	17 ov	m	NPK	n	0.699993	0
	34	18 ov	f	K	n	0.182534	0
	35	19 ov	f	CAKNA	y	0.020204	0
	36	20 ov	f	CONTROL	n	0.053479	0.009316
	37	21 ov	f	NP	n	0.024407	0
	38	22 ov	m	NPNA	y	0.137897	0
	39	23 ov	m	NA	y	0.042924	0
	40	24 ov	f	CONTROL	n	0.061745	0.003253
	41	25 ov	m	NA	y	0.131378	0
	42	26 ov	m	NPNA	y	0.122555	0
	43	27 ov	m	NP	n	0.854005	0
	44	28 ov	m	CONTROL	n	0.03305	0
	45	29 ov	m	NPNA	y	0.015865	0
	46	30 ov	f	NP	n	0.99468	0
	47	31 ov	m	NA	y	0.079012	0
	48	32 cs	m	CONTROL	n	0.146493	0
	49	33 st	f	NP	n	0.962636	0
	51	34 cf	m	NP	n	0.914823	0
	52	35 cs	m	NP	n	0.442537	0
	53	36 st	f	NPNA	y	0.981343	0
	55	37 cs	m	NA	y	0.012341	0
	56	38 oc	f	NP	n	0.031562	0
	57	39 pa	m	CONTROL	n	0.787705	0
	58	40 oc	f	NA	y	0.896196	0
	59	41 oc	m	NA	y	0.125309	0
	60	42 pa	m	CONTROL	n	0.930163	0
	61	43 st	f	NA	y	0.057404	0
	62	44 cs	f	NPNA	y	0.010501	0
	65	45 ov	m	NA	y	0.008088	0
	66	46 cf	f	NA	y	0.051114	0.004175

68	47 cf	m	NPNA	y	0.34477	0
69	48 oc	f	NP	n	0.010387	0
70	49 oc	f	NP	n	0	0
71	50 cs	f	NP	n	0.003014	0
72	51 oc	m	CONTROL	n	0.076619	0
73	52 oc	m	NPNA	y	0.002782	0
74	53 cs	m	NPNA	y	0.043437	0
76	54 pa	m	NA	y	0.922329	0
77	55 pa	f	KNA	y	0.461947	0
78	56 cs	m	CONTROL	n	0.173032	0
79	57 oc	m	NPNA	y	0	0
80	58 oc	f	NPNA	y	0.043887	0
81	59 cs	f	NPNA	y	0.052189	0.000324
82	60 st	f	NPNA	y	0.036656	0

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p								
0.002221	0.020977	0	0	0.004072	0	0.065801	0	
0.003912	0.021068	0	0	0	0	0.010231	0	
0.002588	0.017139	0	0	0.000594	0.0007	0.161507	0	
0.003299	0.020445	0	0	0	0	0.08122	0	
0.04644	0	0	0	0	0	0.089164	0	
0.072038	0.016969	0	0	0	0	0.05896	0	
0	0.001056	0	0	0	0	0.001488	0	
0.013664	0	0	0	0.00132	0.002479	0.033089	0	
0.000994	0.014397	0	0	0	0	0.033558	0	
0.025315	0.105425	0	0	0.001928	0	0.059237	0	
0.018266	0.036637	0	0	0.00152	0.000655	0.016549	0	
0.016192	0	0	0	0	0	0.02464	0	
0.003028	0.003274	0	0	0	0.000476	0.005426	0	
0.070028	0.018602	0	0	0.004572	0.005334	0.043329	0	
0.058051	0.024773	0	0	0.004574	0	0.01266	0	
0	0	0	0	0	0	0.010408	0	
0	0.009357	0	0	0	0	0.030813	0	
0	0	0	0	0.043579	0.048289	0.041825	0	
0.003995	0.009759	0	0	0.008104	0.005593	0.049282	0	
0.007617	0.018733	0	0	0.010376	0.004898	0.044982	0.010496	
0.070704	0.020961	0	0	0	0	0.015899	0	
0.003523	0.007152	0	0	0	0	0.031867	0	
0.141488	0	0	0	0.051896	0	0.101953	0	
0.010893	0.070277	0	0	0.002026	0.003565	0.066723	0	
0.015856	0.039103	0	0	0.021102	0	0.141392	0	
0.102157	0	0	0	0	0	0.01789	0	
0.00355	0.000439	0	0	0.00182	0	0.013488	0	
0.002548	0.049485	0.172031	0	0	0	0.032512	0	
0.003595	0.071763	0	0	0.000742	0.000997	0.141787	0	
0	0	0	0	0	0	0.001154	0	
0.007499	0.003034	0	0.004913	0	0	0.153876	0	
0	0.046813	0	0	0	0	0.360347	0	
0.001375	0.002759	0	0	0	0	0.006415	0	
0.00247	0	0	0	0	0	0.017451	0	
0	0.010617	0	0	0	0	0.169335	0	
0	0.001716	0	0	0	0	0.00277	0	
0.002609	0	0	0	0	0	0.024532	0	
0	0.002604	0	0	0	0	0.005313	0	
0.005573	0.058205	0	0	0.002368	0	0.003405	0	
0	0.000814	0	0	0.019205	0	0.001848	0	
0.003842	0.005088	0	0	0	0	0.019317	0	
0.004901	0	0.004175	0	0.001229	0	0.012955	0	
0.032062	0.006756	0	0	0.001143	0	0.069059	0	
0.004505	0.029624	0	0	0.001204	0.000814	0.206493	0	
0	0.037389	0	0	0	0	0.136786	0	
0.004187	0.008913	0	0	0.002397	0	0.23904	0	

0	0	0	0	0	0	0.063598	0
0.027538	0.065757	0	0	0.000682	0.00614	0.170686	0
0	0	0	0	0	0	0.001551	0
0.002738	0.010505	0	0	0.000326	0.000781	0.040529	0
0.010056	0	0	0	0.012251	0	0.06095	0.012035
0	0	0	0	0	0	0.001722	0
0.004632	0.004653	0	0	0.000442	0	0.033015	0
0.003512	0.000718	0.000855	0	0	0	0.006762	0
0.028823	0.000914	0.006574	0	0	0	0.01132	0
0	0	0	0	0	0	0.069981	0
0	0.002641	0	0	0	0	0.03355	0
0	0.003035	0	0	0	0	0.014566	0
0.001097	0.006521	0	0	0.000293	0	0.196675	0
0.005754	0.007183	0	0	0.001132	0.000893	0.030509	0

k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p
0	0	0	0	0	0	0	0.24636
0	0	0	0.001816	0	0	0	0.104011
0	0	0	0	0	0	0	0.391263
0	0	0.001379	0	0	0	0	0.189854
0	0	0	0	0	0	0	0.268111
0	0	0	0	0	0	0	0.16283
0	0	0	0	0	0	0	0.01027
0	0	0	0	0	0	0	0.256917
0	0	0.00072	0	0	0	0	0.122819
0	0	0	0.002221	0	0	0.002291	0.196613
0	0	0	0.00076	0	0	0	0.079065
0	0	0	0	0	0	0	0.113447
0	0	0	0.000369	0	0	0	0.028865
0.000896	0.000717	0	0.022337	0.002002	0	0.017107	0.361168
0.001131	0	0	0.055369	0.002848	0	0.068038	0.086374
0	0	0	0	0	0	0	0.017757
0	0	0	0	0	0	0	0.061112
0	0	0	0	0	0	0	0.126805
0	0	0	0.033816	0	0	0.045829	0.454099
0	0	0.002239	0.006417	0.004238	0	0.004278	0.094022
0	0	0	0	0	0	0.000606	0.030869
0	0	0	0	0	0	0	0.094987
0	0	0	0	0	0.030466	0	0.190382
0	0	0	0.024228	0	0	0.012247	0.353653
0	0	0	0	0	0	0	0.15546
0	0	0	0	0	0	0	0.050493
0	0	0	0	0	0	0	0.039574
0.003624	0	0	0.004019	0	0	0	0.083576
0	0	0	0.001183	0	0	0	0.405553
0	0	0	0	0	0	0	0.001811
0	0	0	0	0	0	0	0.345611
0	0	0	0	0	0	0	0.378302
0	0	0	0	0	0	0	0.015599
0	0	0	0	0	0	0	0.034873
0	0	0	0	0	0	0	0.2971
0	0	0	0	0	0	0	0.01118
0	0	0	0	0	0	0	0.139465
0	0	0	0	0	0	0	0.275439
0	0	0	0	0	0	0	0.035354
0	0	0	0	0	0	0	0.008569
0.001018	0	0	0	0	0	0	0.114659
0.000415	0	0	0.001347	0	0	0	0.011844
0	0	0	0	0	0	0	0.245102
0.000825	0	0	0	0	0	0	0.480316
0	0	0	0	0	0	0.00447	0.370557
0	0	0	0	0	0	0	0.205969

0	0	0	0	0	0	0	0.36318
0	0	0	0	0	0	0	0.064475
0	0	0	0	0	0	0	0.011825
0	0	0	0	0	0	0	0.039136
0	0	0	0	0	0	0	0.32128
0	0	0	0	0	0	0	0
0	0	0	0.000611	0	0	0	0.631069
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.008185
0	0	0	0	0	0	0.025594	0.085026
0	0	0	0	0	0	0	0.170283
0	0	0	0	0	0	0	0.204036
0	0	0	0	0	0	0	0.228632
0.001501	0	0.002776	0.000691	0	0	0	0.13477

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p								
0.008514	0	0.005892	0	0.020823	0	0	0	
0	0	0	0	0	0	0	0	
0.006804	0	0.001598	0	0.006728	0	0	0.001522	
0.018581	0	0.002591	0	0.001305	0	0	0	
0	0	0	0	0.040248	0	0	0	
0.016645	0	0.00508	0	0	0	0	0	
0	0	0	0	0.000552	0	0	0	
0.211109	0	0.018284	0	0	0	0	0	
0.07435	0	0.002057	0	0.000754	0	0	0	
0.025707	0	0.002082	0	0.017464	0	0	0.001481	
0.001297	0	0	0	0.044879	0	0	0	
0.030172	0	0	0	0.028261	0	0	0	
0.000646	0	0	0	0	0	0	0	
0	0	0	0	0.089362	0	0.000463	0.029329	
0.006652	0	0	0	0.123133	0	0	0	
0	0	0	0	0.003532	0	0	0	
0	0	0	0	0.001097	0	0	0	
0.064018	0	0	0	0	0	0	0	
0.008333	0	0.024427	0	0.072654	0	0	0	
0.041823	0	0.003279	0	0.002479	0	0	0	
0.010487	0	0	0	0.001104	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0.062191	
0.03592	0	0.013787	0	0.038027	0	0.000833	0	
0.042918	0	0	0	0	0	0	0	
0.059522	0	0	0	0.111854	0	0	0	
0.008984	0	0	0.003007	0	0	0	0	
0.171744	0	0	0	0.312771	0	0	0	
0.02897	0	0	0	0.025189	0.002714	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0.017268	0	0	0	
0.003202	0	0	0	0	0	0	0	
0.004363	0	0	0	0	0	0	0	
0.004939	0	0	0	0	0	0	0	
0.005139	0	0	0	0	0	0	0	
0.002207	0	0	0	0	0	0	0	
0.012993	0	0	0	0.032592	0	0	0	
0	0	0	0	0	0	0	0	
0.009497	0	0.013833	0	0.004988	0	0	0	
0.018677	0	0	0	0	0	0	0	
0.016651	0	0.000597	0	0	0	0	0	
0.001347	0	0.00345	0	0.010023	0	0	0	
0.029663	0	0.001168	0	0.00216	0	0.000527	0	
0.018274	0	0	0	0.002373	0	0.000344	0.000298	
0.017027	0	0	0	0	0	0	0	
0.022999	0	0.007215	0	0.017986	0	0	0	

0	0	0	0	0	0	0	0
0.010069	0	0	0	0.086578	0	0	0
0	0	0	0	0	0	0	0
0.031674	0	0	0	0.000544	0	0	0
0	0	0	0	0.024736	0	0	0
0.001954	0	0	0	0	0	0	0
0.043711	0	0	0	0.004611	0	0	0
0.002452	0	0	0	0.014916	0	0	0
0.020768	0	0	0	0.130399	0	0	0
0	0	0	0	0.016558	0	0	0
0.035334	0	0	0	0.102755	0	0	0
0.024428	0	0	0	0.003262	0	0	0
0.002822	0.001066	0	0	0.006396	0	0	0
0.156118	0	0.000929	0	0.003717	0	0	0

k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p
0	0	0	0	0	0	0	0
0	0	0	0.023785	0	0	0	0
0	0	0	0	0	0	0	0.001431
0	0	0	0	0	0	0.001323	0
0	0	0	0	0	0	0	0
0	0	0.00816	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0.015037	0	0	0.012807	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.000511	0	0.000524
0	0	0	0	0.023333	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0.000493	0	0	0.004423	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.175418	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.013635
0.000485	0	0	0.000431	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0.260416	0	0	0
0	0	0	0	0	0.000405	0.001285	0
0	0	0	0.01526	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.000825	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0.000356	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0.001538	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0.001821	0	0	0
0	0	0	0.000565	0	0	0	0
0	0	0	0.001169	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.002937

[illegible]

k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p
0	0	0	0.00725	0	0.005429	0	0.002715
0	0	0	0	0	0.008652	0	0
0	0	0	0.004018	0.001005	0	0	0.001142
0	0	0	0.002199	0.001267	0.003056	0	0
0	0	0	0	0	0	0	0
0	0	0	0.008431	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0.002943	0	0	0.000803	0
0	0	0	0.009598	0	0.026086	0	0
0	0	0	0	0	0	0	0
0	0	0.008478	0.011714	0	0	0	0.001494
0	0	0	0	0	0	0	0
0	0	0	0.00747	0	0.000953	0	0
0	0	0	0	0.000403	0.024697	0	0
0	0.036526	0.00118	0.001756	0	0.173079	0.001404	0.095981
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0.027808	0	0	0	0
0	0	0.001741	0.006934	0	0.002968	0	0.004024
0	0	0.017553	0	0	0.007177	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.001946
0	0	0	0	0	0.056285	0	0
0.002743	0	0	0.001227	0	0.002257	0.001574	0.001262
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.001758	0	0	0.003409	0	0	0	0
0	0	0.005636	0	0.001902	0.002644	0	0
0	0	0	0.000609	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0.001888	0	0	0	0
0	0	0	0	0	0	0.000468	0
0	0	0	0	0	0	0	0
0	0	0	0.000373	0	0.030953	0	0
0	0	0	0	0	0.000785	0	0
0	0	0	0	0	0.015334	0	0
0	0	0	0	0	0	0	0
0.00423	0	0	0.01217	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.001851	0
0	0	0	0	0	0	0	0
0	0	0	0.020853	0	0.000275	0	0
0	0	0	0	0	0.005676	0	0
0	0	0	0	0	0	0	0

0	0	0	0	0	0	0	0
0	0	0	0.014281	0	0.002694	0	0
0	0	0	0.000951	0	0	0	0
0	0	0	0.005633	0	0.000247	0	0
0	0	0	0	0	0.01763	0.005451	0
0	0	0	0	0	0	0	0
0	0	0.001032	0.011496	0	0	0	0
0	0	0	0.020595	0	0	0	0
0.00148	0	0	0.267807	0	0	0	0
0	0	0	0.091034	0	0	0	0
0	0	0	0.014669	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0.01509	0	0	0	0
0	0	0	0	0	0.000715	0.000762	0

k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0.002702	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.003199	0
0.004455	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0.003531	0	0	0	0	0.003121
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0.002026	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0.001181	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.010909	0	0

0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.010829	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.000564	0
0	0	0	0	0	0	0	0

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p							
0.001388	0	0	0	0	0	0	0.025851
0	0	0	0.009892	0	0	0	0.001683
0	0	0	0	0	0.004795	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.980012	0	0
0.003032	0	0	0	0	0	0	0
0	0	0	0	0	0.420697	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.005792	0	0
0	0	0.015187	0	0	0	0	0
0	0	0	0	0	0.001783	0	0
0	0.001718	0.00245	0	0	0.001569	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.00077	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.00253	0	0
0	0	0	0	0	0	0	0
0	0	0.00116	0	0	0.072227	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.009758	0	0
0	0	0.003528	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.004659	0	0
0	0	0	0	0	0.004872	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.00725	0	0

0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.004803	0	0
0	0	0	0	0	0.031068	0	0
0	0	0	0	0	0.248054	0	0
0	0	0	0	0.002274	0.069525	0	0
0	0	0	0	0	0	0	0
0.001263	0	0	0	0	0	0	0
0	0	0	0	0	0.037797	0	0
0	0	0	0	0	0.135306	0	0
0	0	0	0	0	0.070705	0	0
0	0	0.004556	0	0	0.017201	0	0
0.000882	0	0	0	0	0.039324	0.019525	0

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p							
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.002953	0.000411
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.003668	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0.014403	0	0.001808	0	0	0.00133	0
0	0	0	0.017897	0	0	0.001443	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.004698	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.00312	0
0	0	0	0	0	0	0	0
0	0	0	0.003403	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.001239	0
0	0	0	0	0	0	0.003014	0
0	0	0	0	0	0	0.001206	0.00334
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.007191	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.013194	0	0
0.011304	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.000415	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

0	0	0	0	0	0	0	0
0	0	0	0.003129	0.002341	0	0.014034	0.001565
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.001348	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0.011761	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0.001703	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p	0	0	0	0	0	0	0	0.012432
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.010441
	0	0	0	0	0	0	0	0.017425
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.020104
	0	0	0	0	0	0	0.001704	0
	0	0	0	0	0	0	0.005637	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0.005438	0	0.001612	0	0.000511	0.002896
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.001168
	0	0	0	0	0.00115	0	0	0
	0	0	0	0.00078	0	0	0	0.001287
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0.007163	0	0	0	0	0	0.006906
	0	0	0	0	0	0	0	0
	0	0	0	0	0.000417	0	0	0.000296
	0	0	0	0	0	0	0.0156	0.013374
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0.003114	0.002454	0.005556
	0	0	0	0	0	0	0.004173	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.001045
	0	0	0	0	0	0	0	0
	0	0	0	0	0.00116	0.000533	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0.003901	0	0	0.014421
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0.000539	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.004933
0.393133	0.022502	0	0	0	0	0	0	0
0.017251	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.002386
	0	0	0	0	0	0.000785	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0.002128	0	0	0
	0	0	0	0	0	0	0	0

0	0	0	0	0	0	0	0
0	0.000329	0	0	0	0	0	0.003882
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.003221	0	0
0	0.001197	0	0	0	0	0	0
0	0.00431	0	0	0	0	0	0.000914
0	0	0	0	0	0	0	0.01707
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.002124
0	0	0	0	0	0	0	0.002728
0	0	0	0	0	0	0	0

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p								
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0.00102	0	0.012024	0.003212	
0	0	0	0	0	0	0	0.003336	
0	0.036533	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0.000891
0	0	0	0	0	0	0	0	0.001481
0	0	0	0	0	0	0.001337	0.001441	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0.000738
0.001838	0	0	0	0	0	0.0005528	0.000329	
0.001268	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0.071783
0.003596	0.002369	0	0	0	0	0	0	0.004737
0	0	0	0.009216	0	0	0	0.004958	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0.002945
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0.001239
0	0	0	0	0	0	0	0	
0	0.017221	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0.09391	0	
0	0.001322	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0.008843	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0.001849	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0.001104
0	0	0	0	0	0	0.025804	0	
0	0	0	0	0	0	0.002128	0	
0	0	0	0	0	0	0	0.000429	
0	0	0	0	0	0	0.003106	0	
0	0	0	0	0	0	0	0	0.001332
0	0	0	0	0	0	0	0	0.003843
0	0	0	0.000264	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0.000551	0	0	0	0	0.001732

0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.022021
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.000484
0	0.011316	0	0	0	0	0	0.015597
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.002569
0	0	0	0	0	0	0	0.000285
0	0	0	0	0	0	0	0.001263
0	0	0	0	0	0.009502	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.001923
0	0	0	0	0	0	0.006397	0.001989

k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p
0	0	0	0	0	0	0	0.005244
0	0	0	0	0	0	0	0.007352
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.004827
0	0.04582	0	0	0	0	0	0.087926
0	0	0	0	0	0	0	0.049773
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.000999
0	0	0	0	0	0	0	0.001611
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.004324
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.000673
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0.005158	0	0.005198	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0.001551	0	0	0	0.02358
0	0	0	0	0.017525	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0.008025	0	0	0	0	0.000974
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.001705
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.001672	0
0	0	0	0	0	0	0	0.000614
0.001463	0	0	0	0	0	0	0.000878
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.000632
0.001614	0	0	0	0	0	0	0.000518
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.001422
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

0	0	0	0	0	0	0	0.030962
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0.001348	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.001219
0	0	0	0	0	0	0	0.003749
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p
0	0	0	0	0.00509	0.004596	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.00032	0
0	0	0.001118	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0.000785	0	0	0	0	0
0	0	0.001748	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0.003339	0	0	0	0	0	0
0.004578	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.002612	0	0
0	0	0	0	0	0	0	0.035759
0.000556	0	0	0	0	0	0.001748	0
0	0	0	0	0	0	0	0
0	0	0	0.02207	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.002115	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0.000241	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

[illegible]

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p								
0.005491	0	0	0.004566	0.010921	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0.015601	0	0.001963	0.008113	
0	0	0	0	0.009915	0	0	0.002386	
0	0	0	0	0.016718	0	0	0	
0.0107	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0.001213	0	0	0	0.004888	0	0	0.001962	
0	0	0	0	0	0	0	0	
0	0	0	0	0.009067	0	0	0	
0.00038	0	0	0	0.002372	0	0.000616	0.002031	
0	0	0	0	0	0	0	0.017801	
0	0	0	0	0	0.001675	0.000369		
0	0	0	0	0.000329	0	0.000642	0	
0	0	0	0	0.004721	0	0.000995	0.005393	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0.020453	0	
0.001712	0	0	0	0.092886	0	0.002854	0.008361	
0	0	0.002359	0	0.047381	0	0.008557	0.020392	
0	0	0	0	0	0	0	0	
0	0	0	0	0.01213	0	0.00163	0.005031	
0.026239	0	0	0	0	0	0	0	
0	0	0	0	0.004387	0	0.004561	0.00485	
0	0	0	0	0.020386	0	0	0.01061	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0.001508	0	0.00116	0.001763	
0	0	0	0	0	0	0	0	
0	0	0	0	0.006343	0	0	0.001416	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0.00204	0.005936	
0	0	0	0	0	0	0	0.000635	
0	0	0	0	0.005108	0	0	0	
0	0	0	0	0.000781	0	0.000649	0.006633	
0	0	0	0	0.001211	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0	0	0.002173	0	0.001231	0.017343	
0	0	0	0	0	0	0.001204	0.001181	
0	0	0	0	0.004257	0	0	0.005605	
0	0	0	0	0.015669	0	0.004485	0.008615	

0	0	0	0	0	0	0	0
0	0	0	0	0.019068	0.002423	0.042536	0.058593
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.000395	0
0	0.025707	0	0	0	0	0.022793	0
0.000762	0	0	0	0	0	0	0
0	0	0	0	0	0	0.001116	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.005094
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.00075	0
0	0	0	0	0	0	0	0
0	0	0	0	0.001494	0	0.002999	0.005654
0	0	0	0	0	0	0.002597	0.003562

k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p k__Fungi;p	0	0.004627	0	0	0	0	0	0.037266
	0	0	0	0	0	0	0	0.004045
	0	0	0.000928	0	0	0	0	0.010518
	0	0	0	0	0.000671	0	0	0.058184
	0	0	0	0	0	0	0	0.107121
	0	0	0	0	0	0	0	0.038478
	0	0	0	0	0.002256	0	0	0
	0	0.035051	0	0.006564	0.001873	0	0	0.010399
	0	0	0	0.001714	0.001817	0	0	0.028931
	0	0	0	0	0.001788	0	0	0.069995
	0	0.000341	0	0	0.418347	0	0	0.015056
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.002767
	0	0	0	0.000418	0	0	0	0.000583
	0	0	0	0	0	0	0.010436	0.002399
	0	0	0	0	0.000963	0	0	0
	0	0	0	0	0	0	0	0
	0	0.045008	0	0	0	0	0	0.102307
	0	0	0	0	0.004309	0	0	0
	0	0	0	0	0	0.002479	0	0.086905
	0	0.000363	0	0	0.67727	0	0	0.002033
	0	0	0	0	0.016249	0	0	0.004154
	0	0	0	0	0	0	0	0
	0	0	0	0.001331	0	0	0	0.042229
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.00191
	0	0	0	0	0	0	0	0.002584
	0	0	0	0	0.014891	0	0	0.009278
	0	0	0	0	0.000641	0	0	0
0.001604	0	0	0	0	0	0	0	0.012557
	0	0	0	0	0.005757	0	0	0.000666
	0	0	0	0	0	0	0	0.001932
	0	0	0	0	0.0022	0	0	0
	0	0	0	0	0.000407	0	0	0.000475
	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.039365
	0	0	0	0	0.017421	0	0	0.001101
	0	0	0	0	0	0	0	0.003259
	0	0	0	0	0	0	0	0.00231
	0	0	0	0.004737	0	0	0	0.004948
	0	0	0	0	0	0	0	0
	0	0	0	0.007033	0	0.000289	0	0.103519
	0	0	0	0	0.002534	0	0	0.016761
	0	0	0	0.033487	0.017808	0	0	0.029727
	0	0	0	0	0.002661	0	0	0.041593

0	0	0	0	0.054393	0	0	0
0	0	0	0	0	0	0	0.014528
0	0	0	0	0	0	0	0
0	0	0	0	0.126944	0	0	0.070632
0	0	0	0.019627	0.011298	0	0	0.085308
0	0	0	0	0.697731	0	0	0.002782
0	0.002253	0	0	0.038763	0	0	0.02194
0	0	0	0	0.00065	0	0	0.002247
0	0	0	0	0.004006	0	0	0.009317
0	0	0	0	0	0	0	0.078272
0	0	0	0	0.007781	0	0	0.007388
0	0	0	0	0	0	0	0.017676
0	0	0	0	0.048009	0	0	0.014348
0	0	0.001739	0.004896	0.002633	0.002704	0	0.027793

k_Fungi;p_k_Fungi;p_k_Fungi;p_k_Fungi;p_k_Fungi;p_k_Fungi;p_k_Fungi;p_k_Fungi;p							
0	0	0	0.007836	0	0	0	0.037296
0	0	0	0	0	0	0	0.014395
0	0	0	0.005616	0	0	0	0.010137
0	0	0	0.005386	0.011685	0	0	0.02611
0	0	0	0	0	0	0	0
0	0	0	0	0	0.008755	0	0.012322
0	0	0	0	0	0	0	0
0	0	0	0.008205	0	0	0	0.06996
0	0	0	0	0	0	0	0.015562
0	0	0	0.003088	0	0	0.003311	0.034061
0	0	0	0.001179	0	0	0	0.011806
0	0	0	0	0	0	0	0.010761
0	0	0	0.000615	0	0	0	0.00166
0.001883	0	0	0	0	0	0	0.001763
0	0	0	0.016951	0	0	0	0.069852
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0.024116	0	0	0	0	0	0
0	0	0	0.00682	0	0	0	0.002055
0	0	0	0.020112	0	0	0	0.02497
0	0.022751	0	0	0	0	0	0.032942
0	0	0	0.001735	0	0	0	0.033777
0	0	0	0	0	0	0	0
0.000532	0	0	0.013764	0	0	0	0.014493
0	0	0	0.010253	0	0	0	0.023724
0	0	0	0.008694	0	0	0	0.013208
0	0	0	0	0	0	0	0.013488
0	0	0	0.001471	0	0	0	0.001794
0	0	0	0.001229	0	0	0	0.029967
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.09732
0	0	0	0	0	0	0	0.000463
0	0	0	0	0	0	0	0.000737
0	0	0	0	0	0	0	0.000464
0	0	0	0	0	0	0	0.001781
0	0	0	0	0	0	0	0
0	0	0.002776	0.008094	0	0	0	0.085184
0	0	0	0	0	0	0	0.002201
0	0	0	0.004083	0	0	0	0.009231
0	0	0	0	0	0	0	0.030458
0	0	0	0	0	0	0	0.001228
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0.023999
0	0	0	0.000367	0	0	0	0.01112
0	0	0	0.021923	0	0	0	0.026747
0	0	0	0	0	0	0	0.026899

0	0	0	0	0	0	0	0
0	0	0	0.012963	0	0.006058	0	0.230679
0	0	0	0	0	0	0	0
0	0	0	0.00082	0	0	0	0.00335
0	0	0	0	0	0	0	0.061507
0	0	0	0	0	0	0	0.001192
0	0	0	0.001916	0	0	0	0.007306
0	0	0	0.000251	0	0	0	0.000456
0	0	0	0	0	0	0	0
0	0	0	0	0.003027	0	0	0.012646
0	0	0	0	0	0	0	0.018524
0	0	0	0	0	0	0	0.001176
0	0	0	0	0	0.001076	0	0.006521
0	0	0	0.011341	0	0	0	0.064437

k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p
0	0	0	0.009501	0	0.058243	0	0
0.001949	0.002082	0	0	0	0.003898	0	0
0.00032	0.006286	0	0.007869	0	0.019482	0	0
0	0	0	0.023408	0	0.082804	0	0
0	0	0	0	0	0.052632	0	0
0	0	0	0.040424	0	0.035073	0	0
0	0	0	0	0	0.00072	0	0
0	0.000571	0	0.044987	0	0.164321	0	0
0.001337	0.003805	0	0	0	0.073904	0	0
0.010646	0	0	0.030806	0	0.176984	0	0
0	0.000812	0	0.002555	0	0.022721	0	0
0	0	0	0.031178	0	0	0	0
0	0.000338	0	0.002582	0	0.018844	0	0
0	0.000418	0	0	0	0.001912	0	0
0	0	0	0.001873	0	0.025524	0	0
0	0	0	0	0	0.000888	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0.122915	0	0
0	0	0	0	0.000828	0.033245	0	0
0	0	0.00096	0.022391	0	0.244262	0	0.003758
0.0098	0.000458	0	0	0	0.055693	0	0
0	0	0	0.001963	0	0.121665	0	0
0	0	0	0	0	0	0	0
0.000301	0.003079	0	0.035075	0	0.028187	0	0
0	0	0	0.036958	0	0.077849	0	0
0	0.184919	0	0.022571	0	0.136766	0	0
0	0	0	0	0	0.035005	0	0
0	0	0	0	0	0.018373	0	0
0.001809	0	0	0.004894	0	0.033029	0	0
0	0	0	0	0	0	0	0
0	0.00224	0	0.009421	0	0.183643	0	0
0	0	0	0	0	0.001777	0	0
0	0	0	0	0	0.003715	0	0
0	0	0	0	0	0.000778	0	0
0	0	0	0	0	0.002985	0	0
0	0	0	0	0	0	0	0
0.002308	0.006773	0.002642	0.015217	0	0.143161	0	0
0	0	0	0.001291	0	0.156707	0	0
0	0	0	0.005134	0	0	0	0
0	0	0	0	0	0.002057	0	0
0	0	0	0.001877	0	0.009668	0	0
0	0	0	0	0	0.001703	0	0
0.001733	0	0	0.052281	0	0.284272	0	0
0	0.019627	0	0.004437	0	0.009813	0	0
0	0.00525	0	0	0	0.023271	0	0
0	0	0	0.046388	0	0.12237	0	0

0	0	0	0	0 0.061088	0	0	
0	0	0	0.035831	0	0.02642	0	0
0	0	0	0.001835	0	0.000817	0	0
0	0.318937	0	0.02781	0	0.265669	0	0
0	0	0	0.024376	0	0.049778	0	0
0	0.006889	0	0	0	0.010896	0	0
0	0.01316	0	0.008633	0	0.019939	0	0
0	0.010446	0	0.007082	0	0.001768	0	0
0	0	0	0.003048	0	0.015239	0	0
0	0	0	0.042292	0	0.052212	0.015347	0
0	0.038939	0	0	0	0.021236	0	0
0	0	0	0.001745	0	0.006486	0	0
0	0.000303	0	0.000972	0	0.039168	0	0
0	0.035691	0	0.060267	0	0.072359	0	0

k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p
0	0	0	0	0.003177	0	0.040196	0	
0	0	0.002318	0	0	0	0	0	
0	0.000472	0	0	0	0	0.14417	0	
0	0.000932	0.002963	0	0	0	0.035075	0	
0	0	0	0	0	0	0.113313	0	
0	0.011241	0.010214	0	0	0	0.015618	0	
0	0	0	0	0	0	0	0	
0	0.002569	0	0	0	0.00066	0	0	
0	0	0.011586	0	0	0	0.023309	0	
0	0	0.001844	0	0	0	0.133996	0	
0	0.003001	0.001205	0	0	0.001088	0.037881	0.00097	
0	0	0	0	0	0	0.010158	0	
0	0	0.002843	0	0	0	0.002475	0	
0	0	0	0	0	0	0.000657	0	
0	0	0	0	0	0	0	0.029269	
0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	
0	0	0.031429	0	0	0	0.035757	0	
0	0	0	0	0.003196	0	0.004081	0.000856	
0	0	0.014554	0	0	0	0.055098	0.02433	
0	0	0	0	0	0	0.018012	0	
0	0.00603	0	0	0	0	0.467274	0	
0	0	0	0	0	0	0	0	
0	0	0.002385	0	0	0	0.076343	0.000938	
0	0	0	0	0	0	0.215784	0	
0	0	0.073901	0	0	0	0	0	
0.005266	0	0.00404	0	0	0.000994	0	0.002349	
0	0	0.002799	0	0	0	0	0	
0	0	0.020272	0	0	0	0.024911	0.015934	
0	0	0	0	0	0	0.000721	0	
0	0.002572	0	0	0	0	0.03072	0	
0	0	0.000963	0	0	0	0.053329	0	
0	0	0	0	0	0	0	0	
0	0	0.000329	0	0	0	0.009279	0	
0	0	0	0	0	0	0.025373	0	
0	0	0	0	0	0	0	0	
0	0.000669	0.031773	0	0	0	0.368662	0	
0	0	0.001164	0	0	0.026714	0	0	
0	0	0.004828	0	0	0	0.001237	0	
0	0	0.001144	0	0	0	0.0099	0	
0	0	0.000456	0	0	0	0.680165	0	
0	0	0	0	0	0	0.001969	0	
0	0	0.004031	0	0	0	0.003416	0	
0	0.000585	0.008587	0	0	0	0.132148	0	
0	0.003335	0.028592	0	0	0.003973	0.158851	0	
0	0	0	0	0	0	0.090229	0.004497	

0	0	0	0	0	0	0	0	0
0	0.00107	0.000859	0	0	0	0.003258	0.00207	0
0	0	0	0	0	0	0.983021	0	0
0	0	0.013727	0	0	0	0.013312	0.001601	0
0	0	0	0	0	0	0	0.041071	0
0	0	0.002517	0	0	0	0.017486	0	0
0	0	0.001811	0	0	0	0.01377	0.0012	0.0012
0	0	0.000924	0	0	0	0	0	0
0	0	0.001437	0	0	0	0	0	0
0	0	0	0.019865	0	0	0	0.151863	0
0.001606	0	0.02145	0	0	0	0	0.375187	0
0	0	0	0	0	0	0	0.58749	0
0	0	0.001662	0	0	0	0	0.060246	0
0.001072	0	0.050236	0	0	0	0.000762	0.189081	0.001441

k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p	k__Fungi;p
0	0.001943	0.007805	0	0	0	0.005399	0
0	0	0	0	0	0	0	0
0.000883	0.001065	0.02067	0	0	0	0	0.001279
0	0.001491	0.003336	0	0	0.000634	0.00164	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.002756	0
0	0.001176	0	0	0	0	0	0
0	0	0.010043	0	0	0.001802	0.000731	0
0.00096	0	0.004868	0	0.003565	0	0	0
0	0	0	0	0	0	0	0
0.000904	0.000734	0.069749	0.00325	0	0	0	0
0	0	0	0	0	0	0	0
0.000769	0.000753	0.00123	0	0.007147	0	0	0
0.002764	0.004467	0.157149	0	0.005319	0.000493	0	0
0	0	0	0	0.000205	0	0	0.000956
0	0	0.000416	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0.011372	0
0	0.002511	0.034044	0	0	0	0.008532	0.001027
0	0.002059	0.008557	0	0	0	0	0
0	0.001642	0.001992	0	0	0	0	0
0.003067	0.005171	0.005101	0	0	0	0	0
0	0	0	0	0	0	0	0
0.000602	0.002361	0.005753	0	0	0.000521	0	0
0	0	0.008345	0	0	0	0	0
0	0.030262	0	0	0	0	0.025915	0
0	0	0.001265	0	0	0	0	0
0	0	0.001579	0	0	0	0	0
0.002482	0.009811	0.021594	0	0	0	0	0.001461
0	0	0	0	0	0	0.000385	0
0.001373	0.004826	0	0	0	0.001994	0.002066	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0.015559	0	0	0	0	0
0	0	0.001969	0	0	0	0.001782	0
0	0	0	0	0	0	0	0
0	0.000474	0	0	0	0	0	0
0	0.005182	0	0	0	0.000962	0	0
0	0.002863	0.001243	0	0	0	0	0
0.000653	0.000986	0.000814	0	0	0	0	0
0	0.003193	0.021142	0	0.003051	0	0	0
0.001239	0.007456	0.00273	0	0	0	0.005173	0

0	0	0	0	0	0	0	0	0
0	0	0.000776	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0.014202	0	0.001433	0	0	0	0	0	0
0.002986	0	0	0	0	0	0	0	0
0	0	0.005233	0	0	0	0	0	0
0	0	0.004843	0	0	0	0	0	0
0	0.00049	0.001562	0	0	0	0	0	0
0	0.003091	0.009666	0	0	0	0	0	0
0	0	0	0	0.006754	0	0	0	0
0.006746	0	0.005853	0	0	0	0	0	0
0	0.005842	0.013542	0	0	0	0	0	0
0.247578	0.000314	0.029877	0	0	0	0	0	0
0.001596	0	0.008637	0	0	0	0	0	0.001215

k__Fungi;p k__Fungi;p k__Fungi;p k__Plantae	k__Plantae;p__unidentified;c__unidentified;c
0	0 0.013759
0	0 0.009124
0	0 0.003851
0	0 0.040349
0	0 0
0	0 0.023617
0	0 0
0	0 0.004656
0	0 0.005245
0 0.002361	0.025846
0	0 0.001612
0	0 0
0	0 0.001875
0	0 0.000867
0	0 0.001258
0	0 0
0	0 0.000823
0	0 0
0	0 0.006592
0	0 0.020032
0	0 0.000377
0	0 0
0	0 0
0	0 0.005996
0	0 0.011922
0	0 0
0	0 0.004827
0	0 0.003122
0	0 0.004824
0	0 0
0	0 0
0	0 0
0	0 0
0	0 0 0.002095
0	0 0
0	0 0
0	0 0.023094
0	0 0
0	0 0
0	0 0.00033
0	0 0.002632
0	0 0
0	0 0.038316
0	0 0.004517
0	0 0.027669
0	0 0.032623

0	0	0	0	0
0	0	0.008658	0	0
0	0	0	0	0
0	0	0.000751	0	0
0.026139	0	0	0	0
0	0	0	0	0
0	0	0.003158	0	0
0	0	0.000502	0	0
0	0	0.001916	0	0
0	0	0.057476	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0.003717	0	0

o__unidentified;f__unidentified;g__unidentified;s__Plantae_sp

Fungi_Class_SexStkdAb.csv

Sex	Unassignec	Other	Asco;Other	Asco;Dothi	Asco;Sorda	Basidio;Cys	Basidio;Exc
male	0.298176	0.030582	0.0153	0.35758	0.045549	0.005671	0.031229
female	0.237723	0.051493	0.013205	0.314216	0.059615	0.016014	0.047178

Basidio;Mix	Basidio;Tre	Basidio;Ust	Plan ae
0.01932	0.093312	0.103178	0.000102
0.024531	0.122593	0.11336	7.16E-05

Fungi_Class_SpeciesStkdAb.csv

Species	Unassignec	Other	Asco;Other	Asco;Dothi	Asco;Sorda	Basidio;Cys	Basidio;Exc
cf	0.436902	0.028525	0.002219	0.357835	0.006032	0.00959	0.019752
cs	0.110443	0.015673	0.001948	0.487431	0.027184	0.002752	0.028083
oc	0.13186	0.018095	0.004604	0.224409	0.106901	0.017341	0.084288
ov	0.236119	0.062998	0.022171	0.366466	0.058266	0.012706	0.040272
pa	0.775536	0.004254	0.010702	0.172063	0.007086	0.00255	0.001164
st	0.50951	0.013869	0.009798	0.186525	0.016098	0.006726	0.004075

Basidio;Mix	Basidio;Tre	Basidio;Ust	Plantae
0.013864	0.086106	0.038477	0.000698
0.030654	0.154562	0.14127	0
0.015116	0.088123	0.309264	0
0.023176	0.108045	0.069751	3.00E-05
0.003706	0.016407	0.006532	0
0.034059	0.166543	0.05226	0.000537