Appendix S1. Recently published studies on the link between biodiversity and disease

Frontiers in research on biodiversity and disease

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Results of a Web of Science search for papers between 2012 and April 2014 on the relationship between diversity and disease. Our search string was: TS=(species OR host* OR communit*) AND TS=(*diversity OR richness) AND TS=(risk* OR infect* OR emerge* OR transmi*) AND TS=(pathogen* OR parasit* OR disease* OR bacteri* OR virus* OR viral OR fung* OR myco* OR nematod* OR trematod* OR cestod* OR ectoparasit* OR acanthoceph* OR protist* OR protozoa* OR helminth*) AND Language=(English) AND Document Types=(Article). Timespan=2012-2014. Databases=SCI-EXPANDED. The initial search returned ~5000 papers, of which the vast majority were not relevant to the topic and discarded. All reviews and purely theoretical papers were discarded, as were those in which diversity and/or disease were not quantified and in which disease affected diversity (reverse causality) rather than diversity affecting disease (causality of interest). The remaining papers are categorized by the pathogen or disease; the type of host and disease (e.g., human, non-zoonotic); the metric of disease (e.g., disease state refers to presence or absence); the biological entity for which diversity was measured; the specific diversity metric used; whether the study was experimental or non-experimental.

Pathogen/disease	Disease type	Disease metric	Diversity entity	Diversity metric	Exp/ non	Ref
Periodontitis, human	Human, non-zoonotic	Disease severity	Subgingival plaque bacterial community	Shannon, Simpson	Exp	[1]
Periodontitis, human	Human, non-zoonotic	Disease state	Subgingival plaque bacterial community	Shannon	Non	[2]
Intestinal inflammation following graft vs host disease, humans	Human, non-zoonotic	Disease state	Intestinal microbiome	Shannon	Exp	[3]
Malaria, An. gambiae	Human, non-zoonotic	P. falciparum prevalence	Mosquito midgut bacterial community	Shannon	Exp	[4]
Cystic fibrosis, humans	Human, non-zoonotic	Disease severity	Pulmonary microbiota	Species richness	Non	[5]

Cystic fibrosis, humans	Human, non-zoonotic	Disease state	Pulmonary microbiota	Shannon	Non	[6]
Interstitial cystitis, humans	Human, non-zoonotic	Disease state	Urine microbiota	Shannon, species richness	Non	[7]
Chronic rhinosinusitis, humans	Human, non-zoonotic	Disease state	Sinus microbiome	Shannon	Non	[8]
Clostridium difficile infection, humans	Human, non-zoonotic	Disease severity	Fecal microbiota	Shannon, species richness	Exp	[9]
Cystic fibrosis, humans	Human, non-zoonotic	Disease severity	Oral microbiome	Shannon	Non	[10]
Acute otitis media, humans	Human, non-zoonotic	Pathogen presence, disease state	Upper respiratory microbiota	Shannon	Non	[11]
Atopic dermatitis, humans	Human, non-zoonotic	Disease state	Skin bacterial community	Shannon	Exp	[12]
Cystic fibrosis, humans	Human, non-zoonotic	Disease severity	Bacterial community in airways	Shannon	Non	[13]
Cystic fibrosis, humans	Human, non-zoonotic	Disease severity	Bacterial community in airways	Shannon, species richness	Non	[14]
Dental caries, humans	Human, non-zoonotic	Disease state	Oral bacterial community	Shannon	Non	[15]
Periodontitis, humans	Human, non-zoonotic	Disease state	Oral bacterial community	Shannon	Non	[15]
Diarrhea (C. difficile), humans	Human, non-zoonotic	Disease state	Fecal bacterial community	Genus richness	Non	[16]
Human papilloma virus, humans	Human, non-zoonotic	Disease state	Vaginal microbiome	Microbial richness	Non	[17]
E. coli O157:H7	Human, non-zoonotic	Invasion of soil	Soil microbiota	Species richness	Exp	[18]
Atopy, humans	Human, non-zoonotic	Reaction severity	Flowering plants	Species richness	Non	[19]
Clostridium difficile infection, humans	Human, non-zoonotic	Disease state	Fecal microbiota	Shannon, rarefaction	Exp	[20]
Vulvovaginal candidiasis, humans	Human, non-zoonotic	Disease state	Vaginal microbiota	Shannon diversity (genera)	Non	[21]
Clostridium difficile infection, humans	Human, non-zoonotic	Disease state	Gut microbiota	Shannon, species richness	Non	[22]
C. diff–negative nosocomial diarrhea, humans	Human, non-zoonotic	Disease state	Gut microbiota	Shannon, species richness	Non	[22]
Chronic obstructive pulmonary disease, humans	Human, non-zoonotic	Disease state	Lung microbiome	Shannon, species richness	Non	[23]

Candida infection, humans	Human, non-zoonotic	Pathogen load	Salivary microbiome	Shannon, simpson	Non	[24]
Endodontic infection, humans	Human, non-zoonotic	Disease state	Oral microbiota	Shannon, simpson	Non	[25]
Contact-lens related eye disease, humans	Human, non-zoonotic	Disease severity	Bacteria in contact lens cases	Shannon	Non	[26]
Colorectal cancer, humans	Human, non-zoonotic	Disease state	Gut microbiome	Shannon	Non	[27]
Eczema, infant humans	Human, non-zoonotic	Disease status	Gut microbiota	Shannon	Non	[28]
Candidatus phytoplasma proliferation disease, apples	Human, non-zoonotic	Infection status	Endophytic bacterial community	Species richness, rarefaction curves	Non	[29]
Dental caries, humans	Human, non-zoonotic	Disease severity	Tooth surface bacterial community	Shannon	Non	[30]
Obstructive pulmonary disease, humans	Human, non-zoonotic	Disease severity	Lung microbiome	Shannon, Simpson	Non	[31]
Type-2 diabetes, humans	Human, non-zoonotic	Disease status	Gut microbiota	Shannon	Non	[32]
Wheezing, infant humans	Human, non-zoonotic	Disease status	Oropharyngeal microbiome	Shannon, rarefaction curves	Non	[33]
Inflammatory bowel disease, humans	Human, non-zoonotic	Disease status	Gut microbiota	Shannon	Non	[34]
Periodontal disease, humans	Human, non-zoonotic	Disease status	Oral microbiota	Shannon	Non	[35]
Colorectal adenoma, humans	Human, non-zoonotic	Disease status	Rectal microbiota	Species richness	Non	[36]
Cystic fibrosis, humans	Human, non-zoonotic	Disease status	Lung microbiota	Species richness	Non	[37]
Atopic eczema, infant humans	Human, non-zoonotic	Disease presence	Gut microbiota	Shannon	Non	[38]
Tuberculosis, humans	Human, non-zoonotic	Disease presence	Bacterial community in sputum	Shannon	Non	[39]
Barley/cereal yellow dwarf virus, grasses	Plant	Infection prevalence	Plant community	Species richness	Non	[40]
Mildew disease, wheat	Plant	Disease prevalence	Wheat strains	Strain richness	Exp	[41]
Anthracnose, angular leaf spot, black sigatoka, banana, plantain, bean	Plant	Disease damage to host plant	Crop variety	Richness and evenness	Non	[42]
Fungal pathogen Rhizoctonia solani plants	Plant	Infection prevalence	Plant community	Species richness	Exp	[43]

Huanglongbing disease, plants	Plant	Infection status	Endophytic bacterial community	Shannon	Non	[44]
Damping-off, Pythium ultimum, beet	Plant	Area under disease progression curve	Soil bacterial community	Species richness, Shannon	Exp	[45]
Fungal disease, citrus limon	Plant	Disease severity	Fungal epiphyte community	Species richness	Non	[46]
Barley/cereal yellow dwarf virus, grasses	Plant	Infection prevalence	Plant community	Species richness	Non	[47]
Powdery mildew, trees	Plant	Pathogen load	Tree community	Species richness	Exp	[48]
Viral diseases, wild pepper	Plant	Infection prevalence	Plant community	Species richness, Shannon	Non	[49]
Sudden oak death, woody plants	Plant	Disease prevalence	Host tree community	Species evenness	Non	[50]
Ink disease (Phytophthora spp), chestnut tree	Plant	Disease presence	Ectomycorrhizal community	Shannon	Non	[51]
Rotavirus, mice	Wildlife/livestock	Disease severity	Intestinal microbiome	Shannon, phylogenetic richness	Exp	[52]
Chytridiomycosis, amphibians	Wildlife/livestock	Bd infection prevalence	Amphibian community	Species richness	Exp	[53]
Colitis, horses	Wildlife/livestock	Disease state	Fecal microbiome	Simpson	Non	[54]
Bovine tuberculosis, cattle	Wildlife/livestock	Disease presence	Mammal community	Species richness	Non	[55]
Monogenean ectoparasites, fish	Wildlife/livestock	Parasite presence, prevalence	Poeciliid community	Species richness	Non	[56]
Avian malaria	Wildlife/livestock	Infection prevalence	Bird community	Species richness	Non	[57]
Ribeiroia infection, amphibians	Wildlife/livestock	Infection prevalence	Host community	Species richness	Exp	[58]
Ribeiroia infection, amphibians	Wildlife/livestock	Infection prevalence	Parasite community	Species richness	Exp	[58]
Chytridiomycosis, frogs	Wildlife/livestock	Infection prevalence	Amphibian community	Shannon	Non	[59]
Mastitis, dairy cows	Wildlife/livestock	Disease severity	Bacterial communities infected and uninfected teats	Shannon	Non	[60]
Parasite infection, amphibians	Wildlife/livestock	Infection success, pathology	Parasite community	Species richness	Exp	[61]
Trematode infection, frogs	Wildlife/livestock	Infection intensity	Predator and alternative host community	Species richness	Exp	[62]

Gastrointestinal parasites, rodents	Wildlife/livestock	Parasite prevalence	Host community	Species richness	Non	[63]
Gastrointestinal parasites, rodents	Wildlife/livestock	Parasite prevalence	Host community	Shannon	Non	[63]
Parasites, bumblebees	Wildlife/livestock	Infection status	Gut microbiota	Shannon	Non	[64]
White plague disease, corals	Wildlife/livestock	Disease presence	Coral microbiome	OTU richness, Shannon	Non	[65]
Bovine papillomatous digital dermatitis	Wildlife/livestock	Disease presence	Foot microbiota	Shannon	Non	[66]
Trematode infection, amphibians	Wildlife/livestock	Density of infected hosts	Snail community	Species richness	Exp	[67]
Clostridium difficile infection, mice	Wildlife/livestock	Disease presence	Intestinal microbiota	Shannon	Exp	[68]
Puumala hantavirus, bank voles	Zoonotic	Infection probability	Small mammal community	Number of non-hosts	Non	[69]
Sin Nombre hantavirus, deer mice	Zoonotic	Infection prevalence	Small mammal community	Shannon	Non	[70]
Chagas disease, mammals	Zoonotic	Parasitemia in wild mammals, exposure rate in dogs	Mammal community	Species richness	Non	[71]
West Nile virus, mosquitoes	Zoonotic	Infection rates, prevalence	Bird community	Species richness	Non	[72]
Plague, fleas	Zoonotic	Presence/absence epizootic focus	Mammalian community	Simpson	Non	[73]
Plague, fleas	Zoonotic	Presence/absence epizootic focus	Flea community	Simpson	Non	[73]
Ebola virus, bats	Zoonotic	Seroprevalence	Bat colony community	Species richness	Non	[74]
Lyme disease, humans	Zoonotic	Number of infected ticks	Small mammal community	Species richness	Non	[75]
Alveolar echinococcosis, humans	Zoonotic	Disease presence	Small mammal community	Species richness	Non	[76]
Eastern equine encephalitis virus	Zoonotic	Exposure of sentinel chickens	Bird community	Species richness	Non	[77]
West Nile virus, mosquitoes	Zoonotic	Infection prevalence	Host community	Species richness	Non	[78]
Listeria monocytogenes, soils	Zoonotic	Pathogen invasion	Soil microbial community	Species richness, evenness, Shannon,	Exp	[79]

Food-borne zoonotic pathogens, rodents	Zoonotic	Infection prevalence	Small mammal community	Shannon	Non	[80]
Toxoplasma gondii ileitis, mice	Zoonotic	Disease severity	Intestinal mucosa microbiome	Species and generic richness	Exp	[81]
Chagas disease, mammals	Zoonotic	Parasite infection in vector	Vertebrate community	Shannon	Non	[82]

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