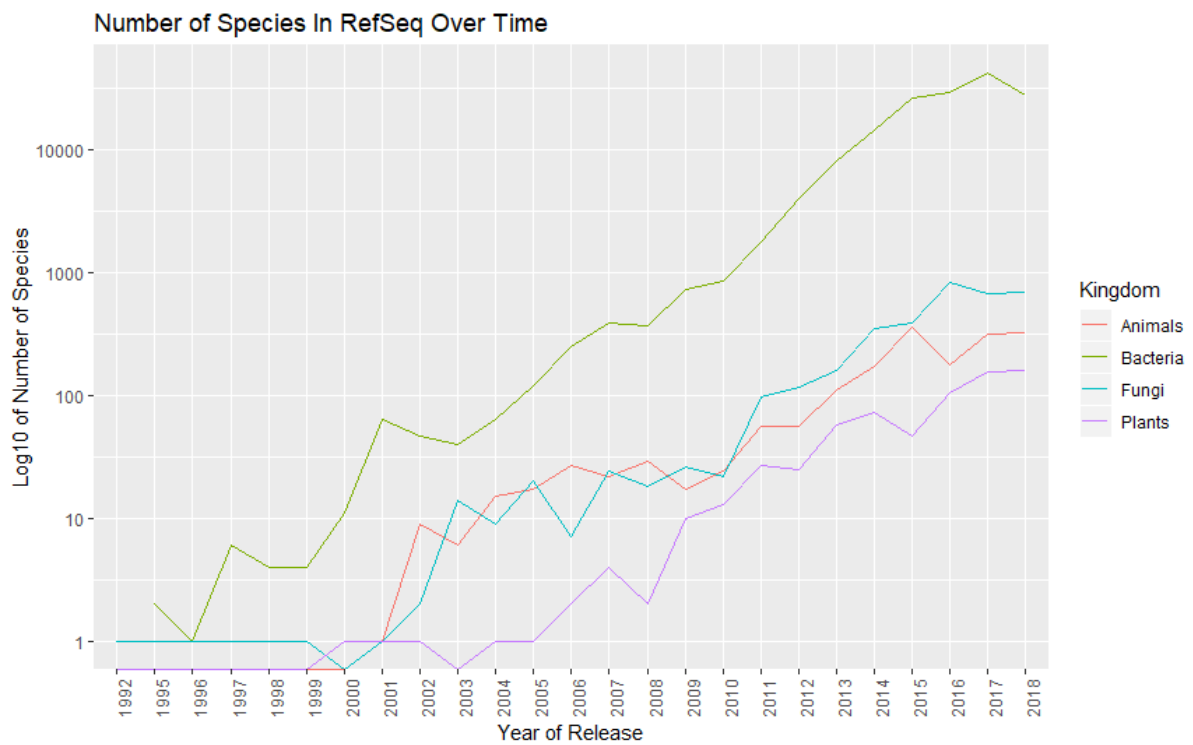
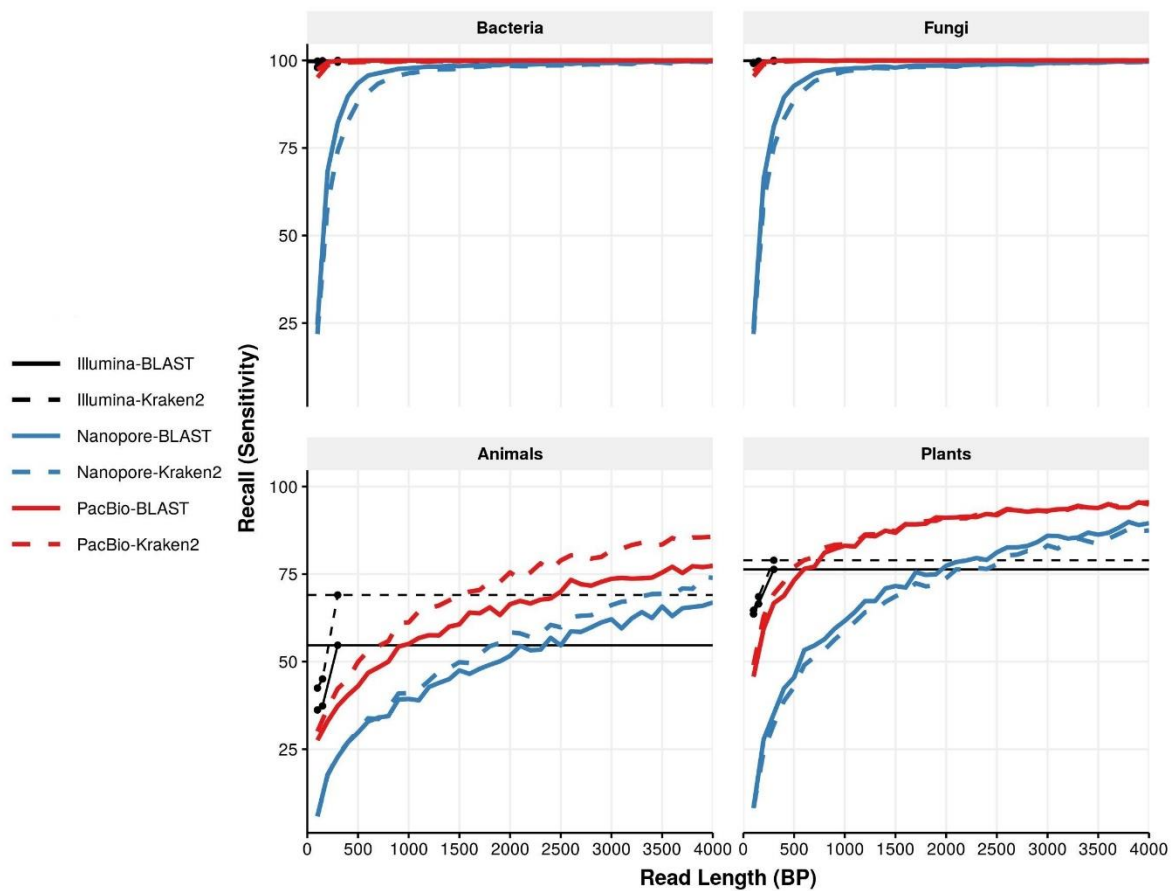


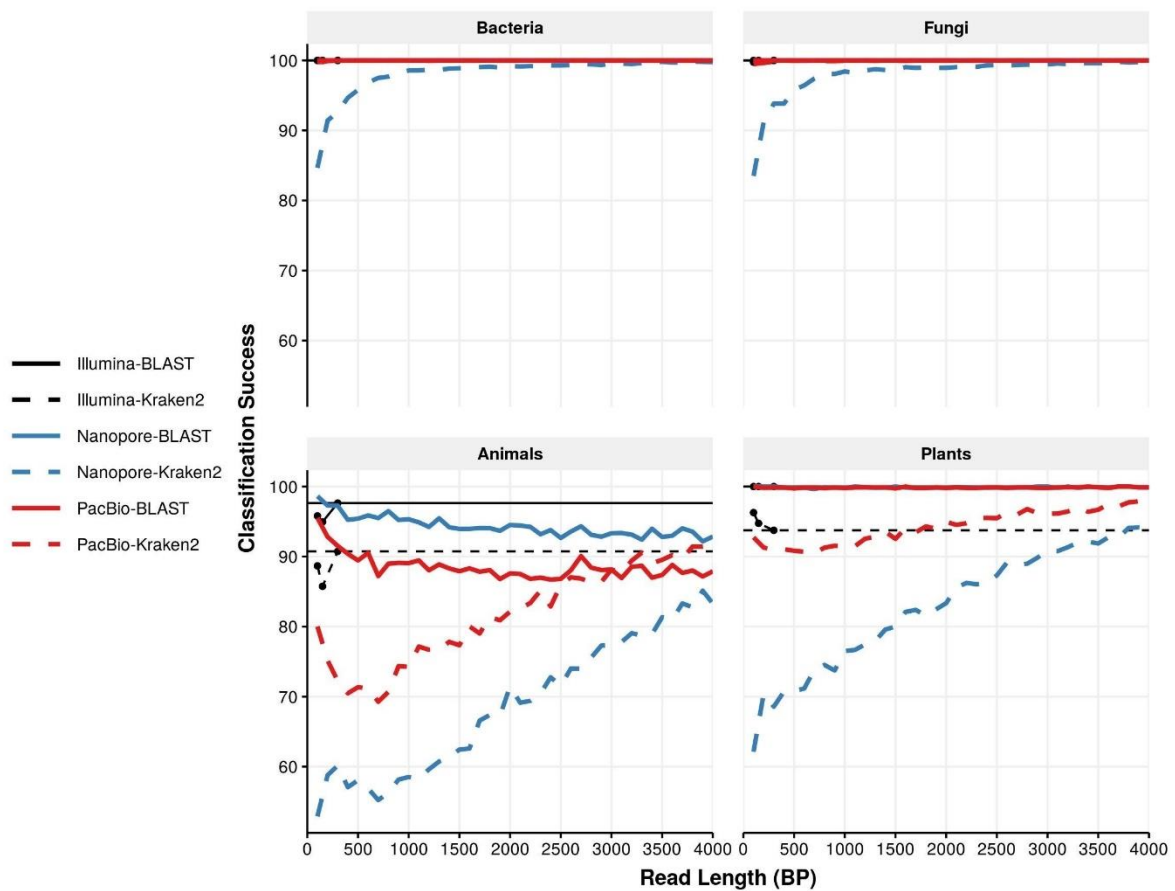
Supplementary Material



Supplementary Figure 1. The number of species present in the NCBI RefSeq database has grown roughly exponentially over time. Note that the y-axis is plotted on a log scale. Data were retrieved from the RefSeq database (47): https://ftp.ncbi.nlm.nih.gov/genomes/GENOME_REPORTS/eukaryotes.txt and https://ftp.ncbi.nlm.nih.gov/genomes/GENOME_REPORTS/prokaryotes.txt



Supplementary Figure 2 Recall at the family level. Each panel shows recall for the different kingdoms. Median recall at the family level is indicated by blue lines for Nanopore or red lines for PacBio, either dashed (Kraken2) or solid (BLAST). The recall rates for 300 bp Illumina reads are shown as thin solid black lines, again either dashed (Kraken2) or solid (BLAST). Black points show the recall for all Illumina reads of all lengths (100 bp, 150 bp, and 300 bp).



Supplementary Figure 3 Classification success at the family level. Each panel shows classification success for the different kingdoms. Median classification success at the family level is indicated by blue lines for Nanopore or red lines for PacBio, either dashed (Kraken2) or solid (BLAST). The recall rates for 300 bp Illumina reads are shown as thin solid black lines, again either dashed (Kraken2) or solid (BLAST). Black points show the classification success for all Illumina reads of all lengths (100 bp, 150 bp, and 300 bp). For animals and plants, the classification success of Kraken2 depends strongly on read length, and only surpasses BLAST in PacBio at approximately 3600bp.

Supplementary Table 1. List of species include in the *in silico* mock community, with associated Kingdom and NCBI

Species	Kingdom	NCBI Accession
<i>Actinidia chinensis</i>	Plantae	CM009654.1
<i>Ananas comosus</i>	Plantae	CM003813.1

<i>Arabidopsis thaliana</i>	Plantae	CP002684.1
<i>Brassica nigra</i>	Plantae	CM004491.1
<i>Camelina sativa</i>	Plantae	CM002729.1
<i>Citrus sinensis</i>	Plantae	CM001701.1
<i>Dioscorea rotundata</i>	Plantae	BDMI01000001.1
<i>Eutrema salsugineum</i>	Plantae	CM001778.1
<i>Gossypioides kirkii</i>	Plantae	CM008980.1
<i>Leersia perrieri</i>	Plantae	CM002476.1
<i>Malus domestica</i>	Plantae	CM007867.1
<i>Micromonas sp.</i>	Plantae	CP001574.1
<i>Panicum hallii</i>	Plantae	CM008046.2
<i>Raphanus sativus</i>	Plantae	CM007999.1
<i>Rosa chinensis</i>	Plantae	CM009582.1
<i>Setaria italica</i>	Plantae	CM004364.1
<i>Solanum lycopersicum</i>	Plantae	CM001064.3
<i>Sorghum bicolor</i>	Plantae	CM000760.3

<i>Theobroma cacao</i>	Plantae	LT594788.1
<i>Trifolium pratense</i>	Plantae	LT555306.1
<i>Amphiprion percula</i>	Animalia	CM009708.1
<i>Bos indicus</i>	Animalia	CM003021.1
<i>Capra hircus</i>	Animalia	CM001710.2
<i>Chrysemys picta</i>	Animalia	CM002655.1
<i>Columba livia</i>	Animalia	CM007525.1
<i>Cyprinus carpio</i>	Animalia	LN590701.1
<i>Drosophila busckii</i>	Animalia	CP012523.1
<i>Equus caballus</i>	Animalia	CM000377.2
<i>Falco peregrinus</i>	Animalia	CM007505.1
<i>Homo sapiens</i>	Animalia	CM004593.1
<i>Lycaon pictus</i>	Animalia	CM007565.1
<i>Macaca mulatta</i>	Animalia	CM000308.1
<i>Microcebus murinus</i>	Animalia	CM007661.1
<i>Mus musculus</i>	Animalia	CM004154.1

<i>Oncorhynchus tshawytscha</i>	Animalia	CM009202.1
<i>Oryctolagus cuniculus</i>	Animalia	CM000790.1
<i>Ovis aries</i>	Animalia	CM008472.1
<i>Takifugu rubripes</i>	Animalia	HE602535.1
<i>Timema cristinae</i>	Animalia	CM007794.2
<i>Xiphophorus maculatus</i>	Animalia	CM008938.1
<i>Agaricus bisporus</i>	Fungi	CP015470.1
<i>Alternaria solani</i>	Fungi	CP022024.1
<i>Colletotrichum higginsianum</i>	Fungi	CM004455.1
<i>Cryptococcus gattii</i>	Fungi	CP025759.1
<i>Debaryomyces hansenii</i>	Fungi	CR382133.2
<i>Eremothecium sincaudum</i>	Fungi	CP014242.1
<i>Flammulina velutipes</i>	Fungi	CM002695.1
<i>Fusarium verticillioides</i>	Fungi	CM000578.1
<i>Kluyveromyces lactis</i>	Fungi	CR382121.1
<i>Komagataella phaffii</i>	Fungi	LT962476.1

<i>Lachancea nothofagi</i>	Fungi	LT598449.1
<i>Malassezia sympodialis</i>	Fungi	LT671813.1
<i>Millerozyma farinosa</i>	Fungi	FO082059.1
<i>Ogataea parapolyomorpha</i>	Fungi	CM002300.1
<i>Saccharomyces cerevisiae</i>	Fungi	BK006935.2
<i>Sporisorium scitamineum</i>	Fungi	CP010913.1
<i>Trichoderma reesei</i>	Fungi	CP016232.1
<i>Valsa mali</i>	Fungi	CM003098.1
<i>Yarrowia lipolytica</i>	Fungi	HG934059.1
<i>Zygosaccharomyces rouxii</i>	Fungi	CU928173.1
<i>Acidithiobacillus ferrivorans</i>	Bacteria	LT841305.1
<i>Bacillus thuringiensis</i>	Bacteria	CP015250.1
<i>Bacillus velezensis</i>	Bacteria	CP025939.1
<i>Bifidobacterium longum</i>	Bacteria	CP013673.1
<i>Bordetella bronchiseptica</i>	Bacteria	CM002881.1
<i>Brucella melitensis</i>	Bacteria	CP018494.1

<i>Campylobacter jejuni</i>	Bacteria	CP012689.1
<i>Caulobacter crescentus</i>	Bacteria	AE005673.1
<i>Cellvibrio japonicus</i>	Bacteria	CP000934.1
<i>Escherichia albertii</i>	Bacteria	AP014855.1
<i>Gordonibacter sp.</i>	Bacteria	LT827128.1
<i>Klebsiella pneumoniae</i>	Bacteria	CP025088.1
<i>Mycobacterium tuberculosis</i>	Bacteria	CP023640.1
<i>Ornithobacterium rhinotracheale</i>	Bacteria	CP006828.1
<i>Pseudomonas arsenicoxydans</i>	Bacteria	LT629705.1
<i>Salmonella enterica</i>	Bacteria	CP007400.2
<i>Serratia symbiotica</i>	Bacteria	LN890288.1
<i>Staphylococcus aureus</i>	Bacteria	CP012974.1
<i>Treponema pallidum</i>	Bacteria	CP020366.1
<i>Vibrio cholerae</i>	Bacteria	LT907989.1