Stringmol run analysis

Popdy

First thing we want is overall pop size in a file. This function is in `14.04/home/sjh/Desktop/sjh/stringmol/R/plotpopdy.R`

```
plot.onepop <- function(infn,outfn,w,h, col.fun=rainbow, totpop = F, plotnspp = F, log = "", time.lim= N
    x   <- read.table(infn,sep=",", col.names=c('time', 'species', 'count'))

    if(is.na(time.lim))
      time.lim <- range(x$time)

    valid.species <- unique(x$species)
    colours <- col.fun(length(valid.species))

    if(totpop){
      times <- as.data.frame(unique(x$time))
      times$pop <- 0
      colnames(times) <- c("time","pop")
      for(tt in 1:nrow(times)){
        data <- x[x$time == times$time[tt],]
        times$pop[tt] = sum(data$count)
      }

      tpmax =max(times$pop)
    }
    else{
      tpmax=0
    }



    if(plotnspp){
      nspp <- as.data.frame(unique(x$time))
      nspp$nspp <- 0
      colnames(nspp) <- c("time","nspp")
      for(tt in 1:nrow(times)){
        data <- x[x$time == times$time[tt],]
        nspp$nspp[tt] <- nrow(data)
      }
      #return(nspp)
    }

    y.lim <- c(1, max(x$count,tpmax))#max(x$count))
    # pdf(file=outfn, height=h, width=w, title=outfn)
    #   par(mar=c(5,5, 0.1, 0.1))
    plot(NA, xlim=time.lim, ylim=y.lim, ann=FALSE, axes=FALSE, log = log )
    sapply(1:length(valid.species), function(i){
        data <- x[x$species==valid.species[i],]
        if(max(data$count > minpop))
          lines(x=data$time, y=data$count + 0.1, col=colours[i])
    })
```

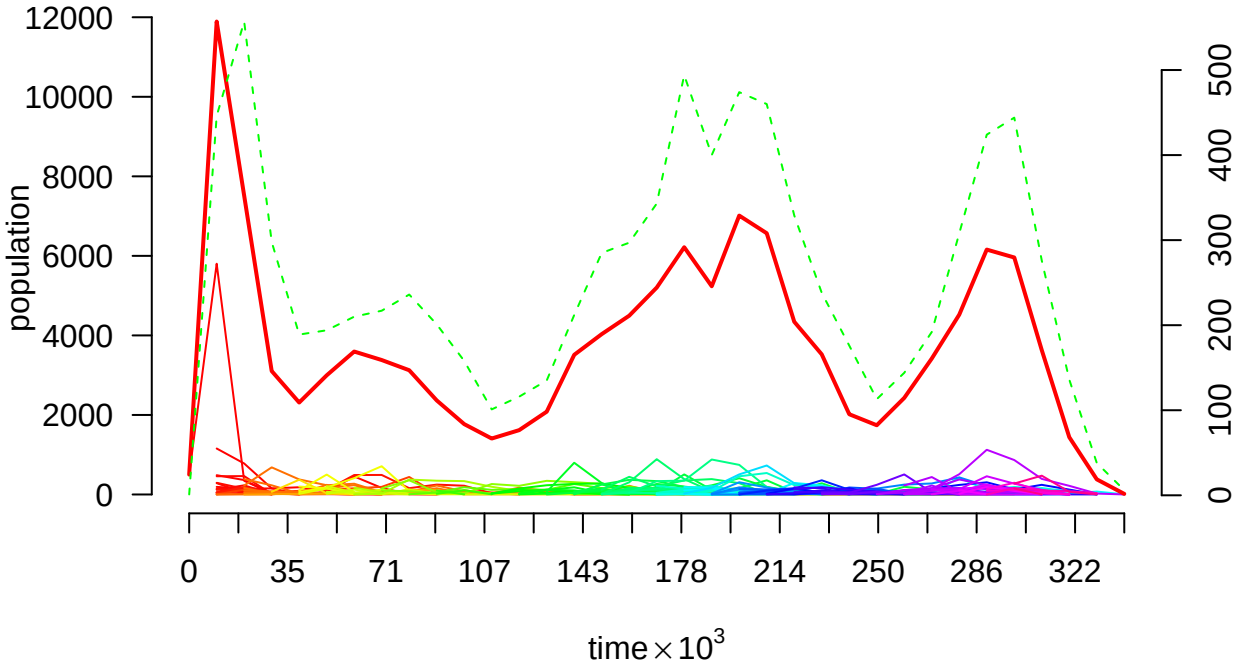
```
    if(totpop)
          lines(x=times$time,y=times$pop,lwd=2,col="red")


    axis(2, las=2)
    title(ylab='population')
    x.positions <- seq(from=time.lim[1], to=time.lim[2], length.out=20)
    axis(1, at=x.positions, labels=sprintf('%d', x.positions / 1e3))


    if(plotnspp){
      par(new = T)
      plot(x=nspp$time,y=nspp$nspp,axes=F,xlab=NA,ylab=NA,type="l",lty=2,col="green")
      axis(side=4)
    }


    title(xlab=expression(time%*%10^3))
    #box()
    # dev.off()
}


plot.onepop("~/Desktop/paulien/confs/out3/popdy001.dat","example1popdy.pdf",12,12,minpop=100, totpop=T,
```



Concerns: - this only records pop every 10000 timesteps - potentially many generations between recordings. Understandable though - if we find a particular feature, we can go back and rerun to get more detail. - Nothing here about species length - need to grab that info from the right spplists file - Need a sanity check on the species numbers via the spplists (since we are purging these).

Community structure

stats

Theres a function called `splist_stats` that generates these - let's check it out:

```
source("../R/splist_stats.R")
sps <- splist_stats("~/Desktop/paulien/confs/out3/splist300000.dat",tmin=290000)
```

```
## 31532 species found
## Commonest reaction:
## 1 commonest reactions, seen 1255 times
## First seen at t = 290561
## Active  molecule is HHLUEUW}JJJRNKX=UUDGRHJLRWVR$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Passive molecule is HHLUEUW}JJJRNKX=UUDGRHJLRWVR$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Product is           HHLUEUW}JJJRNKX=UUDGRHJLRWVR$BLUBO^B>C$=?>$$BLUBO%}OYHO
```

That works, so let's see if we can do an iteration:

```
gotdata<- T
tt <- 10000
while(gotdata){
  fn <- sprintf("~/Desktop/paulien/confs/out3/splist%d.dat",tt)
  if(file.exists(fn)){
    message(sprintf("\nProcessing Time %d:",tt))
    splist_stats(fn,tmin=(tt-10000))
  }
  else
    gotdata <- F

  tt = tt+10000
}
```

```
##
## Processing Time 10000:
## 2080 species found
## Commonest reaction:
## 1 commonest reactions, seen 14725 times
## First seen at t = 2107
## Active  molecule is WWGEWLHHHRLUEUWJJJRJXUUUDYGRHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Passive molecule is WWGEWLHHHRLUEUWJJJRJXUUUDYGRHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Product is           WWGEWLHHHRLUEUWJ
##
## Processing Time 20000:
## 5084 species found
## Commonest reaction:
## 1 commonest reactions, seen 4540 times
```

```
## First seen at t = 15025
## Active  molecule is WWGEWLHHHRLUEUWJJJRJXUUDYGHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Passive molecule is WWGEWLHHHRLUEUWJJJRJXUUDYGHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Product is          $OYHOB
##
## Processing Time 30000:
## 6261 species found
## Commonest reaction:
## 1 commonest reactions, seen 343 times
## First seen at t = 23383
## Active  molecule is $BLUBO^>C$=?>$$BLUBOBO^B>C$=?>$$BLUBO%}OYHOB
## Passive molecule is $BLUBO^>C$=?>$$BLUBOBO^B>C$=?>$$BLUBO%}OYHOB
## Product is          $BLUBO^>C$=?>$$BLUBOBO^B>C$=?>$$BLUBO%}OYHOB
##
## Processing Time 40000:
## 6905 species found
## Commonest reaction:
## 1 commonest reactions, seen 681 times
## First seen at t = 31813
## Active  molecule is WWGEWLHHHRLUEUWJJJRJXU=DYGRHJLRWWRE$GBLUBO^B>C$=?>$$BLUBO%}OYHOB
## Passive molecule is WWGEWLHHHRLUEUWJJJRJXU=DYGRHJLRWWRE$GBLUBO^B>C$=?>$$BLUBO%}OYHOB
## Product is          WWGEWLHHHRLUEUWJJJRJXU=DYGRHJLRWWRE$GBLUBO^B>C$=?>$$BLUBO%}OYHOB
##
## Processing Time 50000:
## 7766 species found
## Commonest reaction:
## 1 commonest reactions, seen 5846 times
## First seen at t = 41138
## Active  molecule is WWGEWLHHHRLUEUWJJJRJXU=DYGRHJLRWWRE$GBLUBO^B>C$=?>$$BLUBO%}OYHOB
## Passive molecule is WWGEWLHHHRLUEUWJJJRJXU=DYGRHJLRWWRE$GBLUBO^B>C$=?>$$BLUBO%}OYHOB
## Product is          LUEUWJ
##
## Processing Time 60000:
## 8572 species found
## Commonest reaction:
## 1 commonest reactions, seen 561 times
## First seen at t = 53040
```

```
## Active  molecule is WWGEWLHHHRLUEUWJJJRNJXU=UDGRHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Passive molecule is WWGEWLHHHRLUEUWJJJRNJXU=UDGRHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Product is          WWGEWLHHHRLUEUWJJJRNJXU=UDGRHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
##
## Processing Time 70000:
## 9469 species found
## Commonest reaction:
## 1 commonest reactions, seen 606 times
## First seen at t = 60434
## Active  molecule is WWGEWLHHHRLUEUWJJJRNJX=UUDGRHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Passive molecule is WWGEWLHHHRLUEUWJJJRNJX=UUDGRHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Product is          WWGEWLHHHRLUEUWJJJRNJX=UUDGRHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
##
## Processing Time 80000:
## 10447 species found
## Commonest reaction:
## 1 commonest reactions, seen 200 times
## First seen at t = 73012
## Active  molecule is WWGEWMHHHRLUEUWJJJRNJX=UUDGRHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Passive molecule is WWGEWMHHHRLUEUWJJJRNJX=UUDGRHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Product is          WWGEWMHHHRLUEUWJJJRNJX=UUDGRHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
##
## Processing Time 90000:
## 11127 species found
## Commonest reaction:
## 1 commonest reactions, seen 268 times
## First seen at t = 83188
## Active  molecule is UUDGRHJLRWWRE$BLUBO^>C$=?>$$BLUBO%}OYHOB
## Passive molecule is UUDGRHJLRWWRE$BLUBO^>C$=?>$$BLUBO%}OYHOB
## Product is          UUDGRHJLRWWRE$BLUBO^>C$=?>$$BLUBO%}OYHOB
##
## Processing Time 100000:
## 11631 species found
## Commonest reaction:
## 1 commonest reactions, seen 196 times
## First seen at t = 92921
## Active  molecule is WWGEWLHHHRLUEUWJJJRNJXUUUDGRGJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
```

```
## Passive molecule is WWGEWLHHHRLUEUWJJJRNJXUUUDGRGJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Product is          JRNJXUUUDGRHJLRWWRE$BMHOBBYHO
##
## Processing Time 110000:
## 11955 species found
## Commonest reaction:
## 1 commonest reactions, seen 450 times
## First seen at t = 102738
## Active  molecule is WWGEWLHHHRLUEUWJJJRNJXUUUDGRGJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Passive molecule is WWGEWLHHHRLUEUWJJJRNJXUUUDGRGJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Product is          WWGEWLH$
##
## Processing Time 120000:
## 12400 species found
## Commonest reaction:
## 1 commonest reactions, seen 153 times
## First seen at t = 115175
## Active  molecule is WWGEWLHHHRLUEUWJJJRNJX=UUDGRHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Passive molecule is WWGEWLHHHRLUEUWJJJRNJX=UUDGRHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Product is          JRNJX=UUDGRHJLRWWRE$BLUBO^?B>C$=?>$$BLUBO
##
## Processing Time 130000:
## 12850 species found
## Commonest reaction:
## 1 commonest reactions, seen 324 times
## First seen at t = 120927
## Active  molecule is WWGEWLHHHRLUEUWJJJRNJXUUUDGRGJLRVWRE$BLUBO^B>C$=?>$$BLUB%}OYHO
## Passive molecule is WWGEWLHHHRLUEUWJJJRNJXUUUDGRGJLRVWRE$BLUBO^B>C$=?>$$BLUB%}OYHO
## Product is          WWGEWLHHHRLUEUWJJJRNJXUUUDGRGJLRVWRE$BLUBO^B>C$=?>$$BLUB%}OYHO
##
## Processing Time 140000:
## 13669 species found
## Commonest reaction:
## 1 commonest reactions, seen 377 times
## First seen at t = 130838
## Active  molecule is WWGEWLHHHRLUEUWJJJRNJX=UUDGRHJLRWWRE$BMUBO^B>C$=?>$$BLUBO%}OYHOB
## Passive molecule is WWGEWLHHHRLUEUWJJJRNJX=UUDGRHJLRWWRE$BMUBO^B>C$=?>$$BLUBO%}OYHOB
```

```
## Product is          JJRNJX=UUDGRHJLRWWR$BMUBO
##
## Processing Time 150000:
## 14656 species found
## Commonest reaction:
## 1 commonest reactions, seen 270 times
## First seen at t = 143717
## Active  molecule is WWGEWLHHHRLUEUWJJJRNJXUUUDGRGJLRVWRE$BLUBO^B>C$=?>$$BLUB%}OYHO
## Passive molecule is WWGEWLHHHRLUEUWJJJRNJXUUUDGRGJLRVWRE$BLUBO^B>C$=?>$$BLUB%}OYHO
## Product is          WWGEWLHHHRLUEUWJJJRNJFXUUUDGRGJLRVWRE$OYHO
##
## Processing Time 160000:
## 15705 species found
## Commonest reaction:
## 1 commonest reactions, seen 151 times
## First seen at t = 151439
## Active  molecule is WWGEWLHHHLUEUWJJJRNJXUUUDGRGJLRVWRE$BLUBO^B>C$=?>$$BLUB%}OYHO
## Passive molecule is WWGEWLHHHLUEUWJJJRNJXUUUDGRGJLRVWRE$BLUBO^B>C$=?>$$BLUB%}OYHO
## Product is          WWGEWLHHHLUEUWJJJRNIXUUUDGRGJLRVWRE$OYHO
##
## Processing Time 170000:
## 17073 species found
## Commonest reaction:
## 1 commonest reactions, seen 1716 times
## First seen at t = 165363
## Active  molecule is WWGEWLHHHRLUEUW}JJJRNJX=UUDGRHJLRWVRE$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Passive molecule is WWGEWLHHHRLUEUW}JJJRNJX=UUDGRHJLRWVRE$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Product is          HHRLUEUW}J
##
## Processing Time 180000:
## 18733 species found
## Commonest reaction:
## 1 commonest reactions, seen 741 times
## First seen at t = 171242
## Active  molecule is WWGEWLHHHBRLUEUWJJJRNJXUVUDGRGJLRVWRE$BLUBO^B>C$=?>$BLUC%}OYH
## Passive molecule is WWGEWLHHHBRLUEUWJJJRNJXUVUDGRGJLRVWRE$BLUBO^B>C$=?>$BLUC%}OYH
## Product is          WWGEWLHHHBRLUEUWJJJRNJXUVUDGRGJLRVWRE$BLUBO^B>C$=?>$BLUC%}OYH
```

```
##
## Processing Time 190000:
## 20139 species found
## Commonest reaction:
## 1 commonest reactions, seen 171 times
## First seen at t = 186354
## Active  molecule is WWGEWLHHHRLUEUWJJJRNJX=UUDGRHJLRWVRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Passive molecule is WWGEWLHHHRLUEUWJJJRNJX=UUDGRHJLRWVRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Product is          JXUUUDGRHJLRWWRE
##
## Processing Time 200000:
## 21732 species found
## Commonest reaction:
## 1 commonest reactions, seen 914 times
## First seen at t = 193159
## Active  molecule is WWGE^WLHHHRUEUWJJRNJX=UUDGRHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Passive molecule is WWGE^WLHHHRUEUWJJRNJX=UUDGRHJLRWWRE$BLUBO^B>C$=?>$$BLUBO%}OYHOB
## Product is          HHRUEUW
##
## Processing Time 210000:
## 23521 species found
## Commonest reaction:
## 1 commonest reactions, seen 1156 times
## First seen at t = 201405
## Active  molecule is WWGEWLHHHRLUEUW}JJJRNJX=UUDGRHJLRWVRE$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Passive molecule is WWGEWLHHHRLUEUW}JJJRNJX=UUDGRHJLRWVRE$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Product is          EUW}
##
## Processing Time 220000:
## 24647 species found
## Commonest reaction:
## 1 commonest reactions, seen 1202 times
## First seen at t = 213761
## Active  molecule is WWGDWLHHHRLUEUW}JJJRNJX=UUDGRJLRWVRE$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Passive molecule is WWGDWLHHHRLUEUW}JJJRNJX=UUDGRJLRWVRE$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Product is          WWGDWLHHHRLUEUW}J
##
## Processing Time 230000:
```

```
## 25427 species found
## Commonest reaction:
## 1 commonest reactions, seen 316 times
## First seen at t = 220807
## Active  molecule is WWGEWLHHHRLUEUW}JJJRNJX=U=DGRHJLRWVRE$BILUBO^B>C$=?>$$BLUBO%}OYHO
## Passive molecule is WWGEWLHHHRLUEUW}JJJRNJX=U=DGRHJLRWVRE$BILUBO^B>C$=?>$$BLUBO%}OYHO
## Product is          WWGEWLHHHRLUEUW}JJJRNJX=U=DGRHJLRWVRE$BILUBO^B>C$=?>$$BLUBO%}OYHO
##
## Processing Time 240000:
## 25933 species found
## Commonest reaction:
## 1 commonest reactions, seen 93 times
## First seen at t = 231956
## Active  molecule is UUDGRGJLRVWRE$BLUBO^RB>C$=?>$$BLUB%}OIYHO$OYHO
## Passive molecule is UUDGRGJLRVWRE$BLUBO^RB>C$=?>$$BLUB%}OIYHO$OYHO
## Product is          UUDGRGJLRVWRE$BLUBO^RB>C$=?>$$BLUB%}OIYHO$OYHO
##
## Processing Time 250000:
## 26295 species found
## Commonest reaction:
## 1 commonest reactions, seen 120 times
## First seen at t = 241776
## Active  molecule is WWGEWLHHHLUEUWJJJRNIXUUUDGRGJLRWRE$BLUBO^B>C$=?>$$BLUB%}OIYHO$OYHO
## Passive molecule is WWGEWLHHHLUEUWJJJRNIXUUUDGRGJLRWRE$BLUBO^B>C$=?>$$BLUB%}OIYHO$OYHO
## Product is          WWGEWLHHHLVEUWJJJRNIXUUUDGRGJLRWRE$BLUBO^B>C$=?>$$BLUB%}OIYHO$OYHO
##
## Processing Time 260000:
## 26859 species found
## Commonest reaction:
## 1 commonest reactions, seen 569 times
## First seen at t = 253164
## Active  molecule is WWGEWLHHHLUEUWJJJRNIXUUUDGRGJLRWRE$BLUBO^B>C$=?>$$BLUB%}OIYHO$OYHO
## Passive molecule is WWGEWLHHHLUEUWJJJRNIXUUUDGRGJLRWRE$BLUBO^B>C$=?>$$BLUB%}OIYHO$OYHO
## Product is          $OYHO$OYHO
##
## Processing Time 270000:
## 27585 species found
```

```
## Commonest reaction:
## 1 commonest reactions, seen 439 times
## First seen at t = 262422
## Active  molecule is WWGEWLHHHRLUEUW}JJJRNJX=U=DGRHILRWVR$BUBO^B>C$=?>$$BLUBO%}OXHO
## Passive molecule is WWGEWLHHHRLUEUW}JJJRNJX=U=DGRHILRWVR$BUBO^B>C$=?>$$BLUBO%}OXHO
## Product is          WWGEWLHHHRLUEUW}JJJRNJX=U=DGRHILRWVR$BUBO^B>C$=?>$$BLUBO%}OXHO
##
## Processing Time 280000:
## 28589 species found
## Commonest reaction:
## 1 commonest reactions, seen 1101 times
## First seen at t = 276244
## Active  molecule is UUDGRHWLRWWRE$BLUBO^>C$=?>$$A%LBO
## Passive molecule is UUDGRHWLRWWRE$BLUBO^>C$=?>$$A%LBO
## Product is          UUDGRHWLRWWRE$BLUBO^>C$=?>$$A%LBO
##
## Processing Time 290000:
## 29908 species found
## Commonest reaction:
## 1 commonest reactions, seen 367 times
## First seen at t = 282499
## Active  molecule is WWGEWLHHHLUEUWJJJRNIXUUUDGRGJLRWRE$BLVBO^B>C$=?>$$BLUB%}OIYHO$OYHO
## Passive molecule is WWGEWLHHHLUEUWJJJRNIXUUUDGRGJLRWRE$BLVBO^B>C$=?>$$BLUB%}OIYHO$OYHO
## Product is          HHHLUEUWJJJRCNIX
##
## Processing Time 300000:
## 31532 species found
## Commonest reaction:
## 1 commonest reactions, seen 1255 times
## First seen at t = 290561
## Active  molecule is HHLUEUW}JJJRNKX=UUDGRHJLRWVR$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Passive molecule is HHLUEUW}JJJRNKX=UUDGRHJLRWVR$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Product is          HHLUEUW}JJJRNKX=UUDGRHJLRWVR$BLUBO^B>C$=?>$$BLUBO%}OYHO
##
## Processing Time 310000:
## 32471 species found
## Commonest reaction:
```

```
## 1 commonest reactions, seen 143 times
## First seen at t = 300617
## Active  molecule is HHLUEUW}JJJRNKX=UUDGRHJLRWVR$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Passive molecule is HHLUEUW}JJJRNKX=UUDGRHJLRWVR$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Product is          HHLUEUW}JJJRNKX=U
##
## Processing Time 320000:
## 32810 species found
## Commonest reaction:
## 1 commonest reactions, seen 115 times
## First seen at t = 310181
## Active  molecule is WWGEWLHHHRLUEUW}JJJRNJX=UUDGRHILRWVR$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Passive molecule is WWGEWLHHHRLUEUW}JJJRNJX=UUDGRHILRWVR$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Product is          WWGEWLHHHRLUDUW}JJJRNJX=UUDGRHILRWVR$
##
## Processing Time 330000:
## 32934 species found
## Commonest reaction:
## 1 commonest reactions, seen 40 times
## First seen at t = 321019
## Active  molecule is WWGEWLHHHRLUEUW}JJJRNJX=UUDGRHILRWVR$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Passive molecule is WWGEWLHHHRLUEUW}JJJRNJX=UUDGRHILRWVR$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Product is          WWGWLHHHRLUEUW}JJJRNJX=UUDGRHILRWVR$
##
## Processing Time 340000:
## 32935 species found
## Commonest reaction:
## 1 commonest reactions, seen 1 times
## First seen at t = 330332
## Active  molecule is WWGEWLHHHRLUEUW}JJJRNJX=UUDGRHILRWVR$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Passive molecule is WWGEWLHHHRLUEUW}JJJRNJX=UUDGRHILRWVR$BLUBO^B>C$=?>$$BLUBO%}OYHO
## Product is          WWGEWLHHHRLUEUW}JJJRNJX=UDGRHILRWVR$
```

Changes in community structure over time

Ancestry