Rediscretization_Temporal

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Rediscretization of Tracks - 20 seconds between positions

- Using primary and secondary filtered data to rediscretize tracks for further analysis
- Tracks have been split into bursts where successive positions were seperated by > 50m
- this threshold can be altered in "Final_Filtering.Rmd" if desired
- Before redistretizing, remove bursts with < 10 positions (too few to rediscretize in adehabitatLT)
- also note that the interval of 20 seconds was selected to be consistent with the 2015 analysis; another script will discretize at 2 seconds to be more consitent with ELAM outputs and USGS analysis

```
## [1] 102633     16
```

```
## [1] 430
```

```
## [1] 588
```

```
## [1] 238.68139534883721
```

```
## [1]  28 660
```

```
## [1] 174.54591836734693
```

```
## [1]   3 660
```

```
## [1] 86.614805950955983
```

```
bursts.rem = data.frame(ndetects.burst[ndetects.burst$ndet<10,])
   nrow(bursts.rem) # 74 bursts removed
```

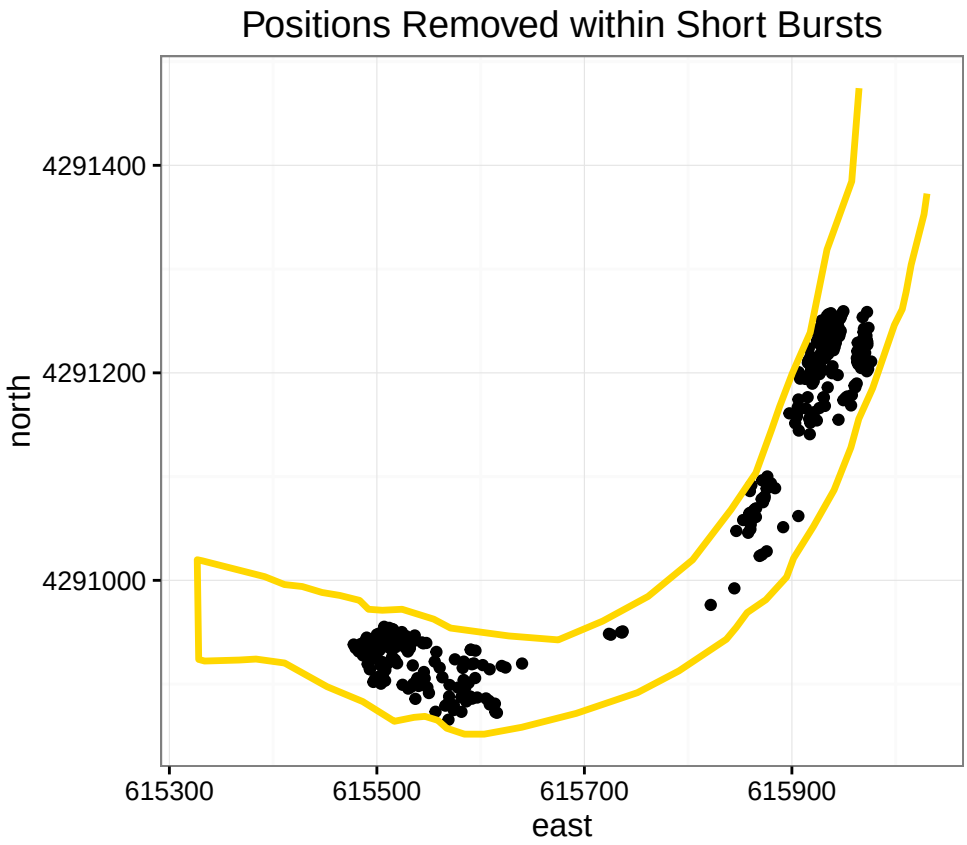
```
## [1] 74
```

```
   sum(bursts.rem$ndet) # 373 positions removed
```

```
## [1] 373
```

```
red.br =  red7[(red7$burst %in% bursts.rem$burst),]

ggplot(data = red.br, aes(x=east, y=north)) + geom_point() +
  geom_path(data = river3, aes(long, lat), col="gold", size=1.2 ) +
  ggtitle(label = "Positions Removed within Short Bursts") +
  theme_bw() + coord_fixed()
```




```
  red8 = red7[!(red7$burst %in% bursts.rem$burst),]

  red8.ltraj = as.ltraj(xy=red8[,c("east","north")], date=red8$date,
                        id=red8$id, burst = factor(red8$burst),
                        infolocs=red8[,c("Hpes","east","north")])
```

Discretize in Time

```
  # discretize in time
  red8.trdz = ld(redisltraj(red8.ltraj, u=20, type="time", nnew=50))
   red8.trdz$run = "LFC" # creates a common grouping variable to make UD with all points
   red8.trdz=red8.trdz[order(red8.trdz$id,red8.trdz$date),]

 # recalculate migration speed
   red8.trdz$spd_mps = red8.trdz$dist / red8.trdz$dt
```

And finally, output the general metrics about the remaining dataset

```
    dim(red8.trdz) # 17004 detections after discretization
```

```
## [1] 17004    22
```

```
    length(unique(red8.trdz$id))  # 430
```

```
## [1] 430
```

```
    ndetects.discr = summarize(group_by(red8.trdz, id), ndet = n())
      mean(ndetects.discr$ndet) # 39.54 per fish
```

```
## [1] 39.544186046511626
```

```
      range(ndetects.discr$ndet) # ranges from 5 - 551
```

```
## [1]   5 551
```

```
    max(red8.trdz$spd_mps, na.rm=T)  # 2.36 mps
```

```
## [1] 2.3571885173978622
```