Package 'rpostgisLT'

July 14, 2016

Title Managing and visualizing animal movement data with PostGIS and R

Version 0.0.1

Description The project develops the integration of R and PostGIS for managing movement trajectories. The focus is on streamlining the workflow for biologists to store and process animal trajectories in PostGIS and analyze these in R, thus utilizing the strengths of both software. Therefore the main outcome is a new R package rpostgisLT, which will simplify the processing of location datasets into trajectories in PostGIS and provide full integration with the R package adehabitatlt data type ltraj.

Depends R (>= 3.3.0)

License GPL (>= 3)

Encoding UTF-8

LazyData true

RoxygenNote 5.0.1

Author Balázs Dukai [aut, cre],
Mathieu Basille [aut],
David Bucklin [aut],
Clément Calenge [ctb]

Imports RPostgreSQL, testthat, rpostgis

Suggests knitr,
rmarkdown

VignetteBuilder knitr

R topics documented:

as_pgtraj *Converts relocation data into the pgtraj data model.*

Description

This is the core function of the rpostgisLT package and it is also used by ltraj2pgtraj to import trajectory data into a pgtraj data model. as_pgtraj copies the trajectory data which is stored in a database to a traj schema. If the provided schema doesn't exist, it is created on demand. On successful data input, as_pgtraj creates a view for each pgtraj, with the views named as <pgtraj>_params. The view contains the same step parameters as an ltraj object (e.g. R2n, rel.angle, dt...). If the input geometries are projected, their projection is used to create the steps in the schema, otherwise either no projection is used or the fuction exits.

Usage

```
as_pgtraj(conn, schema = "traj", relocation_data = NULL,
  pgtrajs = "pgtraj", animals = "animal", bursts = NULL,
  relocations = NULL, timestamps = NULL, rids = "rid", db = TRUE)
```

Arguments

conn	Connection object created with RPostgreSQL
schema	String. Name of the schema that stores or will store the pgtraj data model.
relocation_data	String. Name of the table that stores the relocations, e.g. "public.relocations"
pgtrajs	String. Name of the pgtraj or name of the field that stores the pgtraj names.
animals	String. Name of the animal or name of the field that stores the animal names.
bursts	String. Name of the burst or name of the field that stores the burst names.
relocations	String. Name of the field that contains the relocations in relocation_data.
timestamps	String. Name of the field in relocation_data that contains the timestamps. If NULL, Type I trajectory is assumed.
rids	String. Name of the field in relocation_data that contains the numeric IDs of relocations.
db	Boolean. If TRUE, the relocations are stored in a database table, if FALSE relocations are stored in an R object. It is meant to be used by other functions internally. If you want to import an ltraj from R, use ltraj2pgtraj().

Details

Opening and closing connections have to be done manually by the user. However, the function checks if the provided connection is still valid. Not tested with capital letters for PostgreSQL field names, but it probably won't work. Its a bad practice anyway to force uppercase in PostgreSQL so use lowercase.

Value

TRUE on success

Author(s)

Balázs Dukai <balazs.dukai@gmail.com>

References

https://cran.r-project.org/web/packages/adehabitatLT/vignettes/adehabitatLT.pdf

See Also

Section on pgtraj data model in the package vignette.

Examples

```
## Not run:
as_pgtraj(conn,
        schema = "traj_t4",
        relocation_data = "example_data.relocations_plus",
        pgtrajs = "id",
        animals = "animal",
        bursts = "burst",
        relocations = "geom",
        timestamp = "time",
        rid = "gid")

## End(Not run)
```

---

ltraj2pgtraj *Export an ltraj object from R into a traj database schema.*

Description

`ltraj2pgtraj` creates a new traj schema or uses an existing one and exports an ltraj to the database. Uses `as_pgtraj` to insert the values into the traj schema.

Usage

```
ltraj2pgtraj(conn, ltraj, schema = "traj", pgtraj = NULL, epsg = NULL,
  comment = NULL)
```

Arguments

conn	Connection object created with RPostgreSQL
ltraj	An ltraj object.
schema	String. Name of the schema that stores or will store the pgtraj data model.
pgtraj	String. Name of the new pgtraj. Defaults to the name of the variable that stores the ltraj.
epsg	Numeric. The EPSG code of the Coordinate Reference System of the relocation coordinates in the ltraj. Defaults to 0.
comment	String. A comment that will be stored with the pgtraj in the database.

Value

TRUE on success

Author(s)

Balázs Dukai <balazs.dukai@gmail.com>

See Also

as_pgtraj

Examples

```
## Not run: ltraj2pgtraj(conn, ibex, "traj_t2")
```

---

pgtraj2ltraj *Import a pgtraj into an ltraj.*

Description

pgtraj2ltraj imports a single pgtraj from a database into an ltraj object.

Usage

```
pgtraj2ltraj(conn, schema = "traj", pgtraj)
```

Arguments

conn	Connection object created with RPostgreSQL
schema	String. Name of the schema that stores or will store the pgtraj data model.
pgtraj	String. Name of the pgtraj.

Value

an ltraj object

Author(s)

Balázs Dukai <balazs.dukai@gmail.com>

Examples

```
## Not run: pgtraj2ltraj(conn, "traj_t2", "ibex")
```

Index