

Package ‘VDYPinR’

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Title Happy VDYP7inR

Version 1.0

Description Running VDYP7 in R.

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exampledata_VDYP7	<i>The function is to generate example data for VDYP7inR package</i>
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Description

The function is to generate example data for VDYP7inR package

Usage

```
exampledata_VDYP7()
```

Value

a list contains a polygon file and layer file

Author(s)

Yong Luo

extractBYTable	<i>The function is to extract yield tables when biomass is turned on</i>
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Description

The function is to extract yield tables when biomass is turned on

Usage

```
extractBYTable(rawYieldTable, volIncluded, biomIncluded)
```

Arguments

rawYieldTable	data.frame or data.table, The yield table with biomass is turned on.
volIncluded	logical, Specifies whether the volume yield table is turned on.
biomIncluded	logical, Specifies whether the biomass yield table is turned on.

Value

biomass yield table, and volume yield table is volume is turned on

Author(s)

Yingbing Chen, Yong Luo

flat2TwoFiles	<i>The function is to organize flat input (one input file) and return two input files</i>
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Description

This function is to organize flat input (one input file) and return two input files

Usage

```
flat2TwoFiles(flatFile)
```

Arguments

flatFile data.frame or data.table, The flat file.

Value

a list two files layFile and polygonFile, which are two input files for VDYP7 projection

Note

the flatFile only contains primary layer and veteran layer

Author(s)

Yingbing Chen, Yong Luo

utilTableGenerator	<i>The function is to prepare the util input table for runing VDYP7</i>
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Description

The function is to prepare the util input table for runing VDYP7. This function is to allow DBH setting for each of the 16 possible species group (SP0). The DBH util level can be supplied from 4, 7.5, 12.5, 17.5 and 22.5.

Usage

```
utilTableGenerator(
  all,
  exception = NULL,
  biomass = FALSE,
  askForConfirm = TRUE
)
```

Arguments

all	numeric, Assign all the 16 species group with this DBH util level.
exception	character, Modify the util level by species using this argument. This argument is formed as SP0,util, for example, AC, 4.
biomass	logical, Generate biomass util table, default is FALSE. When it is TRUE, the function ignores inputs from all and exception arguments, as VDYP7 only uses this util when simulate biomass.
askForConfirm	logical, Print the output to confirm the util table, default is TRUE.

Value

util table for 16 species group

Author(s)

Yong Luo when the projBiomass = T, the unitilization level will be overwritten. And the volume and biomass summaries will be derived using the new unitilization level. AC → 12.5 AT → 12.5 B → 17.5 C → 17.5 D → 12.5

```

E    --> 12.5
F    --> 17.5
H    --> 17.5
L    --> 12.5
MB   --> 12.5

PA   --> 12.5
PL   --> 12.5
PW   --> 12.5

PY   --> 12.5
S    --> 17.5
Y    --> 17.5

```

Examples

```

## Not run:
utiltable1 <- utilTableGenerator(all = 12.5, askForConfirm = FALSE)
print(utiltable1)
  SP0 util
1:  AC 12.5
2:  AT 12.5
3:   B 12.5
4:   C 12.5
5:   D 12.5
6:   E 12.5
7:   F 12.5
8:   H 12.5
9:   L 12.5
10: MB 12.5
11: PA 12.5
12: PL 12.5
13: PW 12.5
14: PY 12.5

```

```

15:  S 12.5
16:  Y 12.5

utiltable2 <- utilTableGenerator(all = 12.5,
                                exception = c("AC,4", "H, 17.5", "Y, 22.5"),
                                askForConfirm = FALSE)

print(utiltable2)
      SP0 util
1:  AC  4.0
2:  AT 12.5
3:  B  12.5
4:  C 12.5
5:  D 12.5
6:  E 12.5
7:  F 12.5
8:  H 17.5
9:  L 12.5
10: MB 12.5
11: PA 12.5
12: PL 12.5
13: PW 12.5
14: PY 12.5
15:  S 12.5
16:  Y 22.5

utiltable3 <- utilTableGenerator(all = 12.5,
                                exception = c("AC,4", "H, 17.5", "Y, 22.5"),
                                biomass = TRUE,
                                askForConfirm = FALSE)

print()
      SP0 util
1:  AC 12.5
2:  AT 12.5
3:  B 17.5
4:  C 17.5
5:  D 12.5
6:  E 12.5
7:  F 17.5
8:  H 17.5
9:  L 12.5
10: MB 12.5
11: PA 12.5
12: PL 12.5
13: PW 12.5
14: PY 12.5
15:  S 17.5
16:  Y 17.5

## End(Not run)

```

Description

The VDYP7 takes two input files poly file and layer file. This function is to examine whether those two input files are valid for VDYP7 run, in terms of 1) data structure and 2) data matchness

Usage

```
validInput(polyFile, layerFile)
```

Arguments

- polyFile data.frame or data.table, The poly file for VDYP7 run.
- layerFile data.frame or data.table, The layer file for VDYP7 run.

Value

a text file to present the results

Author(s)

Yong Luo

VDYP7Debug	<i>The function is to run VDYP7 in R environment with debug model turned on.</i>
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Description

This function is to prepare two input files (polyFile and layerFile); to prepare VDYP configuration and cmd file; to run VDYP7; and load VDYP7 output into R environment. This function does not support debug mode. To run debug mode, you may use [VDYP7Debug](#).

Usage

```
VDYP7Debug(  
  polyFile,  
  layerFile,  
  utilTable,  
  VDYP7consolePath = "C:/VDYP7",  
  debugPath,  
  timeSeries,  
  startTime,  
  endTime,  
  timeIncrement = 10,  
  backward = TRUE,  
  forward = TRUE,  
  allowBatphsub = FALSE,  
  yTableIncProjMode = TRUE,  
  yTableIncAge = TRUE,  
  yTableIncYear = TRUE,  
  yTableIncPolyID = TRUE,  
  forceYear = NULL,
```

```

    forceRefYear = TRUE,
    forceCrtYear = FALSE,
    secondarySpcHt = FALSE,
    projByLayer = TRUE,
    projBySpecies = TRUE,
    projVolume = TRUE,
    projBiomass = FALSE,
    logFile = FALSE
  )

```

Arguments

polyFile	data.frame or data.table, The poly file for VDYP7 run.
layerFile	data.frame or data.table, The layer file for VDYP7 run.
utilTable	data.frame or data.table, The table contains utilization level for 16 species groups. It can be generated using utilTableGenerator .
VDYP7consolePath	character, Specifies where your VDYP7console is located. The VDYP7 is recommended to be installed at C:/VDYP7, therefore, the default value for this argument is C:/VDYP7. Please specify if the software has not been installed in this directory.
debugPath	character, Specifies path to store debug files.
timeSeries	character, Specifies time series for the simulation from either age, year or NULL. If NULL, forceYear must be specified.
startTime	integer, Specifies the time to start simulation.
endTime	integer, Specifies the time to terminate simulation.
timeIncrement	integer, Specifies the time interval to summary simulation results. Default is 10 years.
backward	logical, Whether want to do backward simulation. Default is TRUE.
forward	logical, Whether want to do forward simulation. Default is TRUE.
allowBatphsub	logical, Whether to allow Batphsub. (what is this), Default is FALSE.
yTableIncProjMode	logical, Whether want to use proj mode to run simulation. Default is TRUE.
yTableIncAge	logical, Whether want to include age column in yield table. Default is TRUE.
yTableIncYear	logical, Whether want to include Year column in yield table. Default is TRUE.
yTableIncPolyID	logical, Whether yield table include polygon id. Default is TRUE.
forceYear	numeric, Specifies the force year, so that it can be included in yield table.
forceRefYear	logical, Whether want to include reference year in yield table. Default is TRUE.
forceCrtYear	logical, Whether want to include current year in yield table. Default is FALSE.
secondarySpcHt	logical, Whether want to project secondary species height in yield table. Default is FALSE.
projByLayer	logical, Whether allow projection summarized by layer???. Default is TRUE.
projBySpecies	logical, Whether allow projection summarized by species. Default is TRUE.
projVolume	logical, whether allow the output include volume. Default is TRUE.
projBiomass	logical, whether allow the output include biomass. Default is FALSE.
logFile	logical, whether output meta data. Default is FALSE.

Value

a list that contains 1) simulated stand yield table (equivalent to -o in VDYP7 console); 2) processing message (equivalent to -e in VDYP7 console); 3) log message (equivalent to -l in VDYP7 console); 4) may contain log message from core module (equivalent to -v7log in VDYP7 console); 5) metadata to run the simulation (cmd file and console specifications)

Note

1. when the projBiomass = T, the unitilization level will be overwritten. And the volume and biomass summaries will be derived using the new unitilization level. AC → 12.5 AT → 12.5 B → 17.5 C → 17.5 D → 12.5 E → 12.5 F → 17.5 H → 17.5 L → 12.5 MB → 12.5 PA → 12.5 PL → 12.5 PW → 12.5 PY → 12.5 S → 17.5 Y → 17.5

Author(s)

Yong Luo

See Also

see [VDYP7Save](#) to save results; [VDYP7RunParallel](#) to run VDYP7 parallel. see [VDYP7Run](#) to turn off debug mode.

 VDYP7Run

The function is to run VDYP7 in R environment

Description

This function is to prepare two input files (polyFile and layerFile); to prepare VDYP configuration and cmd file; to run VDYP7; and load VDYP7 output into R environment. This function does not support debug mode. To run debug mode, you may use [VDYP7Debug](#).

Usage

```
VDYP7Run(
  polyFile,
  layerFile,
  utilTable,
  VDYP7consolePath = "C:/VDYP7",
  timeSeries,
  startTime,
  endTime,
  timeIncrement = 10,
  backward = TRUE,
  forward = TRUE,
  allowBatphsub = FALSE,
  yTableIncProjMode = TRUE,
  yTableIncAge = TRUE,
  yTableIncYear = TRUE,
  yTableIncPolyID = TRUE,
  forceYear = NULL,
  forceRefYear = TRUE,
```



```

    forceCrtYear = FALSE,
    secondarySpcHt = FALSE,
    projByLayer = TRUE,
    projBySpecies = TRUE,
    projVolume = TRUE,
    projBiomass = FALSE,
    logFile = FALSE
)

```

Arguments

polyFile	data.frame or data.table, The poly file for VDYP7 run.
layerFile	data.frame or data.table, The layer file for VDYP7 run.
utilTable	data.frame or data.table, The table contains utilization level for 16 species groups. It can be generated using utilTableGenerator .
VDYP7consolePath	character, Specifies where your VDYP7console is located. The VDYP7 is recommended to be installed at C:/VDYP7, therefore, the default value for this argument is C:/VDYP7. Please specify if the software has not been installed in this directory.
timeSeries	character, Specifies time series for the simulation from either age, year or NULL. If NULL, forceYear must be specified.
startTime	integer, Specifies the time to start simulation.
endTime	integer, Specifies the time to terminate simulation.
timeIncrement	integer, Specifies the time interval to summary simulation results. Default is 10 years.
backward	logical, Whether want to do backward simulation. Default is TRUE.
forward	logical, Whether want to do forward simulation. Default is TRUE.
allowBatphsub	logical, Whether to allow Batphsub. (what is this), Default is FALSE.
yTableIncProjMode	logical, Whether want to use proj mode to run simulation. Default is TRUE.
yTableIncAge	logical, Whether want to include age column in yield table. Default is TRUE.
yTableIncYear	logical, Whether want to include Year column in yield table. Default is TRUE.
yTableIncPolyID	logical, Whether yield table include polygon id. Default is TRUE.
forceYear	numeric, Specifies the force year, so that it can be included in yield table.
forceRefYear	logical, Whether want to include reference year in yield table. Default is TRUE.
forceCrtYear	logical, Whether want to include current year in yield table. Default is FALSE.
secondarySpcHt	logical, Whether want to project secondary species height in yield table. Default is FALSE.
projByLayer	logical, Whether allow projection summarized by layer???. Default is TRUE.
projBySpecies	logical, Whether allow projection summarized by species. Default is TRUE.
projVolume	logical, whether allow the output include volume. Default is TRUE.
projBiomass	logical, whether allow the output include biomass. Default is FALSE.
logFile	logical, whether output meta data. Default is FALSE.

Value

a list that contains 1) simulated stand yield table (equivalent to -o in VDYP7 console); 2) processing message (equivalent to -e in VDYP7 console); 3) log message (equivalent to -l in VDYP7 console); 4) may contain log message from core module (equivalent to -v7log in VDYP7 console); 5) metadata to run the simulation (cmd file and console specifications)

Note

1. when the projBiomass = T, the unitilization level will be overwritten. And the volume and biomass summaries will be derived using the new unitilization level. AC → 12.5 AT → 12.5 B → 17.5 C → 17.5 D → 12.5 E → 12.5 F → 17.5 H → 17.5 L → 12.5 MB → 12.5 PA → 12.5 PL → 12.5 PW → 12.5 PY → 12.5 S → 17.5 Y → 17.5

Author(s)

Yong Luo

See Also

see [VDYP7Save](#) to save results; [VDYP7RunParallel](#) to run VDYP7 parallel. see [VDYP7Debug](#) to turn on debug mode.

VDYP7RunParallel

The function is to run VDYP7 in R environment using parallel

Description

This function is to prepare two input files (polyFile and layerFile); to prepare VDYP configuration and cmd file; to run VDYP7; and load VDYP7 output into R environment.

Usage

```
VDYP7RunParallel(
  polyFile,
  layerFile,
  utilTable,
  VDYP7consolePath = "C:/VDYP7",
  timeSeries,
  startTime,
  endTime,
  timeIncrement = 10,
  backward = TRUE,
  forward = TRUE,
  allowBatphsub = FALSE,
  yTableIncProjMode = TRUE,
  yTableIncAge = TRUE,
  yTableIncYear = TRUE,
  yTableIncPolyID = TRUE,
  forceYear = NULL,
  forceRefYear = TRUE,
  forceCrtYear = FALSE,
```

```

    secondarySpcHt = FALSE,
    projByLayer = TRUE,
    projBySpecies = TRUE,
    projVolume = TRUE,
    projBiomass = FALSE,
    logFile = FALSE
)

```

Arguments

polyFile	data.frame or data.table, The poly file for VDYP7 run.
layerFile	data.frame or data.table, The layer file for VDYP7 run.
utilTable	data.frame or data.table, The table contains utilization level for 16 species groups. It can be generated using utilTableGenerator .
VDYP7consolePath	character, Specifies where your VDYP7console is located. The VDYP7 is recommended to be installed at C:/VDYP7, therefore, the default value for this argument is C:/VDYP7. Please specify if the software has not been installed in this directory.
timeSeries	character, Specifies time series for the simulation from either age, year or NULL. If NULL, forceYear must be specified.
startTime	integer, Specifies the time to start simulation.
endTime	integer, Specifies the time to terminate simulation.
timeIncrement	integer, Specifies the time interval to summary simulation results. Default is 10 years.
backward	logical, Whether want to do backward simulation. Default is TRUE.
forward	logical, Whether want to do forward simulation. Default is TRUE.
allowBatphsub	logical, Whether to allow Batphsub. (what is this), Default is FALSE.
yTableIncProjMode	logical, Whether want to use proj mode to run simulation. Default is TRUE.
yTableIncAge	logical, Whether want to include age column in yield table. Default is TRUE.
yTableIncYear	logical, Whether want to include Year column in yield table. Default is TRUE.
yTableIncPolyID	logical, Whether yield table include polygon id. Default is TRUE.
forceYear	numeric, Specifies the force year, so that it can be included in yield table.
forceRefYear	logical, Whether want to include reference year in yield table. Default is TRUE.
forceCrtYear	logical, Whether want to include current year in yield table. Default is FALSE.
secondarySpcHt	logical, Whether want to project secondary species height in yield table. Default is FALSE.
projByLayer	logical, Whether allow projection summarized by layer???. Default is TRUE.
projBySpecies	logical, Whether allow projection summarized by species. Default is TRUE.
projVolume	logical, whether allow the output include volume. Default is TRUE.
projBiomass	logical, whether allow the output include biomass. Default is FALSE.
logFile	logical, whether output meta data. Default is FALSE. #'

Value

a list that contains 1) simulated stand yield table (equivalent to -o in VDYP7 console); 2) processing message (equivalent to -e in VDYP7 console); 3) log message (equivalent to -l in VDYP7 console); 4) may contain log message from core module (equivalent to -v7log in VDYP7 console); 5) metadata to run the simulation (cmd file and console specifications)

Author(s)

Yong Luo

See Also

see [VDYP7Save](#) to save results

VDYP7Save	<i>The function is to examine whether the data is valid for VDYP7 run</i>
-----------	---

Description

The VDYP7 takes two input files poly file and layer file. This function is to examine whether those two input files are valid for VDYP7 run, in terms of 1) data structure and 2) data matchness

Usage

```
VDYP7Save(  
  simuOutput,  
  savePath,  
  saveName,  
  saveFmt = "txt",  
  overWrite = FALSE,  
  metadata = FALSE  
)
```

Arguments

simuOutput	list, The output from VDYP7Run .
savePath	character, Specifies the path to save outputs.
saveName	character, Specifies the name of saved outputs. This is prefix for saved files. This argument has to be specified.
saveFmt	character, Specifies the format you want to save the yield table. Currently, it supports rds, txt, csv and xlsx. Default is txt. Please note that the rest of the outputs are saved as txt file.
overWrite	logical, Specifies whether the user wish to overwrite the existing file in the save path. Default is FALSE.
metadata	logical, Specifies whether the user wish to save metadata. Default is FALSE.

Value

no value

Author(s)

Yong Luo

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