

# Package ‘lterdatasampler’

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**Title** Educational Dataset Examples from the Long Term Ecological Research Program

**Version** 0.1.1

**Date** 2023-08-11

**Description** Curated datasets from US Long Term Ecological Research sites.

**License** CC0

**Encoding** UTF-8

**LazyData** true

**RoxygenNote** 7.2.3

**Depends** R (>= 2.10)

**Suggests** knitr, rmarkdown, janitor, usethis, metajam, tidyverse, here, broom, sf, ggmap, leaflet, lubridate, patchwork, tsibble, feasts, changepoint, gt

**URL** <https://github.com/lter/lterdatasampler>

**BugReports** <https://github.com/lter/lterdatasampler/issues>

**NeedsCompilation** no

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and_vertebrates	<i>Cutthroat trout and salamander length and weights in Mack Creek, Andrews Forest LTER</i>
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### Description

Includes count and size data for cutthroat trout and salamanders in clear cut or old growth sections of Mack Creek, Andrews Forest LTER.

### Usage

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and_vertebrates
```

### Format

A tibble with 32,209 rows and 16 variables:

**year** a number indicating the observation year

**sitecode** a character denoting the coded name of sample area

**section** a character denoting the section in Mack Creek (CC = clear cut forest, OG = upstream old growth coniferous forest)

**reach** a character denoting the reach sampled from each section; L = lower reach (0 - 50 meters), M = middle reach (50 - 100 meters), U = upper reach (100 - 150 meters))

**pass** a number denoting the electroshocking pass number, either 1 or 2

**unitnum** a number denoting the channel unit number

**unittype** a character denoting the channel unit classification type (C = cascade, I = riffle, IP = isolated pool (not connected to channel), P = pool, R = rapid, S = step (small falls), SC = side channel, NA = not sampled by unit)

**vert\_index** a number denoting the unique index for each vertebrate

**pitnumber** a number denoting the unique tag number embedded into vertebrate (tagging started in 2007)

**species** a character denoting species measured

**length\_1\_mm** a number denoting vertebrate length in millimeters; total or snout-fork length for trout, and snout-vent length for salamanders

**length\_2\_mm** a number denoting snout-tail length in millimeters (for Coastal giant salamander only)

**weight\_g** a number denoting vertebrate mass in grams

**clip** a character denoting the fin clip type for cutthroat trout, ended in 2006 (LV = left ventral fin; LVRV = left and right ventral fins; RV = right ventral fin; NONE = no ventral fin clip)

**sampldate** a date denoting the date of observation

**notes** a character denoting additional comments

### Source

Gregory, S.V. and I. Arismendi. 2020. Aquatic Vertebrate Population Study in Mack Creek, Andrews Experimental Forest, 1987 to present ver 14. Environmental Data Initiative. [doi:10.6073/pasta/7c78d662e847cdbe33584add8f809165](https://doi.org/10.6073/pasta/7c78d662e847cdbe33584add8f809165)

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arc_weather	<i>Daily weather data from Toolik Field Station at Toolik Lake, Alaska (1988 - 2018) from Arctic LTER</i>
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### Description

A subset of daily recorded meteorological data, including mean daily air temperature and wind-speed, and daily total precipitation, measured at Toolik Field Station, Alaska (Arctic LTER) from 1988 - 2018.

### Usage

arc\_weather

### Format

A tibble with 11,171 rows and 5 variables:

**date** a date denoting recorded date

**station** a character denoting the station

**mean\_airtemp** a number denoting mean daily air temperature in degrees Celsius

**daily\_precip** a number denoting total daily precipitation in millimeters

**mean\_windspeed** a number denoting daily mean windspeed in meters per second

### Source

Shaver, G. 2019. A multi-year DAILY weather file for the Toolik Field Station at Toolik Lake, AK starting 1988 to present. ver 4. Environmental Data Initiative. [doi:10.6073/pasta/ce0f300cdf87ec002909012abefd9c5c](https://doi.org/10.6073/pasta/ce0f300cdf87ec002909012abefd9c5c)  
 Arctic LTER website: <https://arc-lter.ecosystems.mbl.edu/>

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hbr_maples	<i>Health of Sugar Maple (Acer saccharum) Seedlings in Response to Calcium Addition (2003-2004), Hubbard Brook LTER</i>
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### Description

Sugar maple seedlings were examined at Hubbard Brook Experimental Forest on calcium-treated and reference sites during August 2003 and June 2004. Seedlings were sampled every ten steps in transects.

### Usage

hbr\_maples

### Format

A tibble with 359 rows and 11 variables

**year** a number denoting the year that the sample was taken

**watershed** a factor denoting the watershed where the sample was collected; W1 = calcium-treated, Reference = reference

**elevation** a factor describing the Elevation of transect; Low = low elevation, Mid = mid elevation

**transect** a factor denoting the transect number within the watershed

**sample** a factor denoting the sample number within transect. There are twenty samples in each transect

**stem\_length** a number denoting the height of the seedling in millimeters

**leaf1area** a number denoting the area of the first sampled leaf in square centimeters

**leaf2area** a number denoting the area of the second sampled leaf in square centimeters

**leaf\_dry\_mass** a number denoting the dry mass of both sampled leaves in grams

**stem\_dry\_mass** a number denoting the dry mass of the stem in grams

**corrected\_leaf\_area** a number denoting the area of both leaves in addition to the area removed for chlorophyll measurements in square centimeters

### Source

Juice, S. and T. Fahey. 2019. Health and mycorrhizal colonization response of sugar maple (*Acer saccharum*) seedlings to calcium addition in Watershed 1 at the Hubbard Brook Experimental Forest ver 3. Environmental Data Initiative. [doi:10.6073/pasta/0ade53ede9a916a36962799b2407097e](https://doi.org/10.6073/pasta/0ade53ede9a916a36962799b2407097e)

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knz_bison	<i>Konza Prairie Bison Herd Information, Konza Prairie Biological Station LTER</i>
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### Description

The purpose of this study is to monitor long-term changes in individual animal mass. The datasets include an annual summary of the bison herd structure, end-of-season weights of individual animals, and maternal parentage of individual bison.

### Usage

knz\_bison

### Format

A tibble with 8,325 rows and 9 columns:

**data\_code** a character denoting the dataset code

**rec\_year** a number denoting the year of observation

**rec\_month** a number denoting the month of observation

**rec\_day** a number denoting the day of observation

**animal\_code** a character denoting the unique individual bison identification code based on ear tag number

**animal\_sex** a character denoting the sex of bison: M = male, F = female, U = unknown

**animal\_weight** a number denoting bison weight in pounds

**animal\_yob** a number denoting the year animal was born

### Source

EBlair, J. 2021. CBH01 Konza Prairie bison herd information ver 12. Environmental Data Initiative. <https://doi.org/10.6073/pasta/9c641b35695abc5889edd64c3950517f> (Accessed 2021-05-10). [doi:10.6073/pasta/9c641b35695abc5889edd64c3950517f](https://doi.org/10.6073/pasta/9c641b35695abc5889edd64c3950517f)

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luq_streamchem	<i>LUQ Stream Chemistry Data for Quebrada Sonadora (QS) site</i>
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### Description

Data include stream chemistry data for the Quebrada Sonadora (QS) location part of the Luquillo LTER site

### Usage

luq\_streamchem

**Format**

A tibble with 597 rows and 18 variables:

**Sample\_ID** a character denoting Watershed or Collector's location where the sample is taken

**Sample\_Date** a date denoting the date when the sample was collected

**Gage\_Ht** a number denoting the height of the water surface above the gage datum (zero point) at sampling time (in meters)

**Temp** a number denoting the temperature of the sample collected

**pH** a number pH (Electrometric with combination electrode)

**Cond** a number denoting the conductivity (Conductivity bridge in micro siemens/cm)

**Cl** a number denoting the concentration of Chloride (up to 1989 by automated colorimetric analysis (thiocyanate); after 1989 by liquid chromatography with conductivity detection) in mg Cl/L

**NO3** a number denoting the concentration of dissolved nitrate in the stream water in ug N/L

**SO4-S** a number denoting the concentration of Sulfate (Liquid chromatography; conductivity detection) in mg/L

**Na** a number denoting the concentration of Sodium (up to 1994 by atomic absorption spectroscopy) in mg/L

**K** a number denoting the concentration of Potassium (up to 1994 by atomic absorption spectroscopy) in mg/L

**Mg** a number denoting the concentration of Magnesium (up to 1994 by atomic absorption spectroscopy) in mg/L

**Ca** a number denoting the concentration of Calcium (up to 1994 by atomic absorption spectroscopy) in mg/L

**NH4-N** a number denoting the concentration of Ammonium Nitrogen (automated colorimetric analysis (phenolhypochlorite)) in ug N/L

**DOC** a number denoting Dissolved Organic Carbon in the stream water ion milligrams carbon per liter (mg C/L)

**DIC** a number denoting Dissolved Inorganic Carbon (by syringe stripping and infrared spectroscopy (Stainton 1973)) in mg C/L

**SiO2** a number denoting the concentration of Silica (automated colorimetric analysis (molybdate blue)) in mg SiO<sub>2</sub>/L

**TSS** a number denoting the Total Suspended Sediments in mg/L

**Source**

McDowell, W. 2021. Chemistry of stream water from the Luquillo Mountains ver 4923056. Environmental Data Initiative. [doi:10.6073/pasta/0a09f5aa2e6f11451553c92b102279a6](https://doi.org/10.6073/pasta/0a09f5aa2e6f11451553c92b102279a6)

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ntl_airtemp	<i>Daily Average Temperature Data in Madison, WI (1869 - 2019), North Temperate Lakes LTER</i>
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### Description

Data includes date of collection, year of collection, and average air temperature in Madison, WI. Daily meteorological data was collected from various sites around Madison, WI since 1869. The final temperature data included is averaged for each year. Note: according to the metadata, temperature data collected prior to 1884 contains biases.

### Usage

ntl\_airtemp

### Format

A tibble with 55151 rows and 3 variables

**sampledate** a date denoting the day of collection

**year** a number denoting the year of observation

**ave\_air\_temp\_adjusted** a number denoting the air temperature in degrees Celsius, collected in Madison, WI and adjusted for biases

### Source

Anderson, L. and D. Robertson. 2020. Madison Wisconsin Daily Meteorological Data 1869 - current ver 32. Environmental Data Initiative. doi:[10.6073/pasta/e3ff85971d817e9898bb8a83fb4c3a8b](https://doi.org/10.6073/pasta/e3ff85971d817e9898bb8a83fb4c3a8b)

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ntl_icecover	<i>Ice Freeze and Thaw Dates for Madison, WI Area Lakes (1853 - 2019), North Temperate Lakes LTER</i>
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### Description

Data includes lake name, dates of freeze-up and thaw, and duration of ice cover of lakes in the Madison, WI area. Ice cover duration is the number of days that a lake is frozen, excluding periods where the lake thaws before refreezing again. Lakes Monona and Wingra are considered to be frozen if they are completely ice covered, while Lake Mendota is considered to be frozen if there is ice from Picnic Point to Maple Bluff and more than 50% of the lake is covered by ice.

### Usage

ntl\_icecover

**Format**

A tibble with 431 rows and 5 variables

**lakeid** a factor denoting the lake name

**ice\_on** a date denoting the freeze date of each lake

**ice\_off** a date denoting the ice breakup date of each lake

**ice\_duration** a number denoting the number of days between the freeze and breakup dates of each lake

**year** a number denoting the year of observation

**Source**

Magnuson, J.J., S.R. Carpenter, and E.H. Stanley. 2021. North Temperate Lakes LTER: Ice Duration - Madison Lakes Area 1853 - current ver 35. Environmental Data Initiative. [doi:10.6073/pasta/ab31f2489ee436beb73fc8f1d0213d97](https://doi.org/10.6073/pasta/ab31f2489ee436beb73fc8f1d0213d97)

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nwt_pikas	<i>American Pika (Ochotona princeps) Stress and Habitat Measurements (2018), Niwot Ridge LTER</i>
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**Description**

Niwot Ridge American pika (*Ochotona princeps*) stress data collected every two weeks from June-September 2018. Stress was measured by observing the amount of glucocorticoid metabolite present in pika feces and sex was determined via genetic analysis of the fecal sample.

**Usage**

nwt\_pikas

**Format**

A tibble with 109 rows and 7 variables

**date** a date denoting the observation date of the fecal sample

**site** a factor denoting the location where the fecal sample was collected within Niwot Ridge

**station** a factor denoting the sample station where the fecal sample was collected

**utm\_easting** a number denoting the GPS E-W coordinate of the sampling station as Universal Transverse Mercator easting; NAD83, Zone 13. Measured in meters.

**utm\_northing** a number denoting the GPS N-S coordinate of the sampling stations as Universal Transverse Mercator northing; NAD83, Zone 13. Measured in meters.

**sex** a factor denoting the sex of the observed pika

**concentration\_pg\_m** a number denoting the glucocorticoid metabolite (GCM) concentration in picogram GCM/gram dry pika feces

**elev\_m** a number denoting the elevation in meters of the sampling station where the fecal sample was collected



**Source**

Whipple, A. and Niwot Ridge LTER. 2020. Physiological stress of American pika (*Ochotona princeps*) and associated habitat characteristics for Niwot Ridge, 2018 - 2019 ver 1. Environmental Data Initiative. doi:[10.6073/pasta/9f95baf55f98732f47a8844821ff690d](https://doi.org/10.6073/pasta/9f95baf55f98732f47a8844821ff690d)

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pie_crab	<i>Fiddler crab body size in salt marshes from Florida to Massachusetts, USA at PIE and VCR LTER and NOAA NERR sites during summer 2016.</i>
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**Description**

We collected ~30 male, adult *Minuca pugnax* from thirteen marshes from Florida to Massachusetts and measured their carapace width with calipers. Water and air temperature data were collected from monitoring programs (i.e., LTER, NERR sites), nearby weather stations, and ocean buoys for 2016.

**Usage**

pie\_crab

**Format**

A tibble with 392 rows and 9 variables:

**date** a date denoting the date crabs were collected

**latitude** a number denoting the latitude of salt marsh (degree)

**site** a character denoting the location where crabs were collected (abbreviation of site name); GTM=Guana Tolomoto Matanzas NERR | SI=Sapelo Island NERR | NIB=North Inlet Winyah Bay NERR | ZI=Zeke's Island NERR | RC=Rachel Carson NERR | VCR=Virginia Coastal Reserve LTER | DB=Delaware Bay NERR | JC=Jacques Cousteau NERR | CT=Sixpenny Island - Connecticut | NB=Narragansett Bay NERR | CC=Cape Cod | BC=Bare Cove Park | PIE=Plum Island Estuary - West Creek

**size** a number denoting carapace width of a crab (millimeter)

**air\_temp** a number denoting mean annual air temperature (Celsius)

**air\_temp\_sd** a number denoting the standard deviation of mean annual air temperature (Celsius)

**water\_temp** a number denoting mean annual water temperature (Celsius), which is surface temperature (< 1m)

**water\_temp\_sd** a number denoting the standard deviation of mean annual water temperature (Celsius)

**name** full name of research site; LTER, Long-Term Ecological Research site; NERR, National Estuarine Research Reserve

**Source**

Johnson, D. 2019. Fiddler crab body size in salt marshes from Florida to Massachusetts, USA at PIE and VCR LTER and NOAA NERR sites during summer 2016. ver 1. Environmental Data Initiative. [doi:10.6073/pasta/4c27d2e778d3325d3830a5142e3839bb](https://doi.org/10.6073/pasta/4c27d2e778d3325d3830a5142e3839bb)

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