

# Edmonton R User Group



Meetup - June 23, 2022

<https://www.meetup.com/edmonton-r-user-group-yegrug>

<https://yegrug.github.io>

## Last Thursday of every month, 6-8 pm

We're an online and in-person **R-enthusiast group** hosting **live speaking events** on a range of topics, from data wrangling to visualization and Shiny.

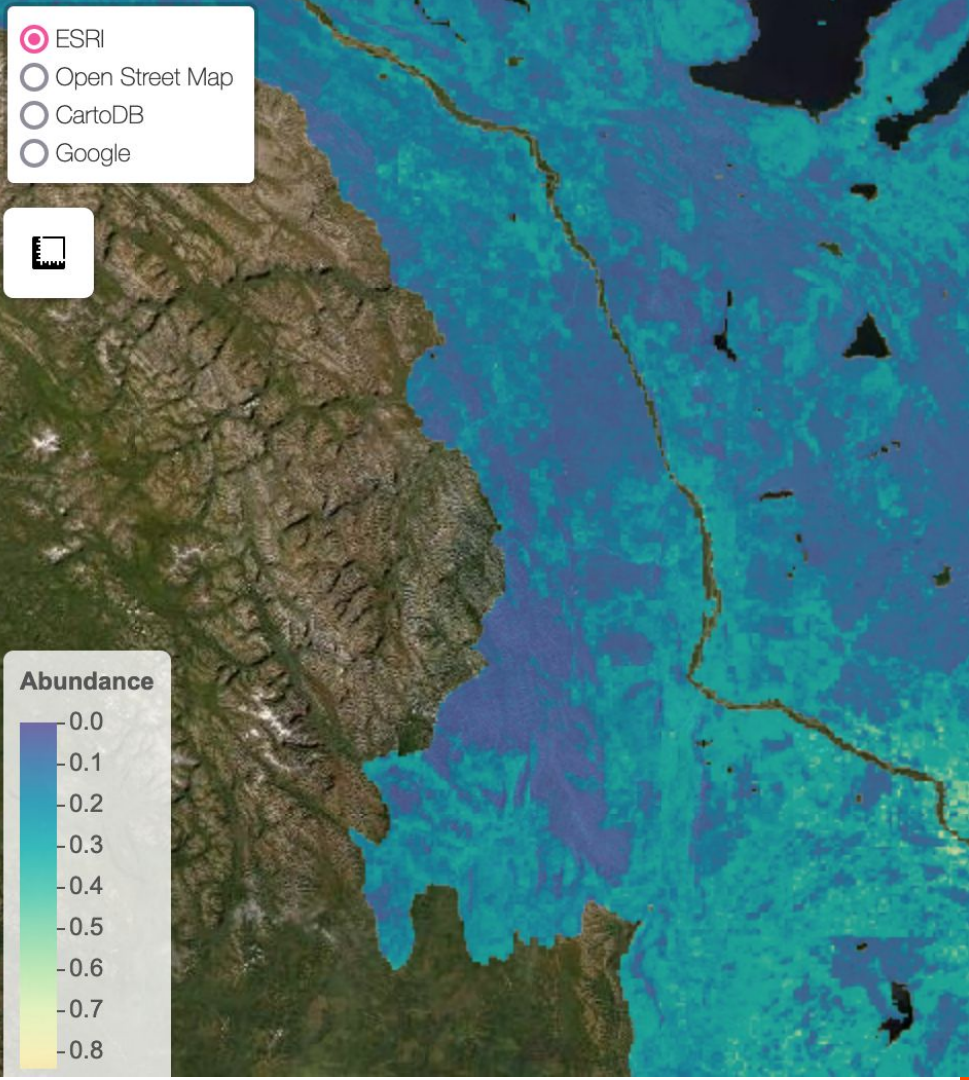
Learn R, hone your skills, network, or just stay up-to-date.  
All skill levels are welcome!

Edmonton is located on Treaty 6 territory, a traditional gathering place for diverse Indigenous peoples whose histories, languages, and cultures continue to influence our community.

## Our sponsors



Your logo here



# Displaying raster files in R with Leaflet

by Peter Solymos

Edmonton R  
User Group



June 23, 2022

# About Peter

Ecologist, data scientist, R dev since 2007

E Source

Analythium

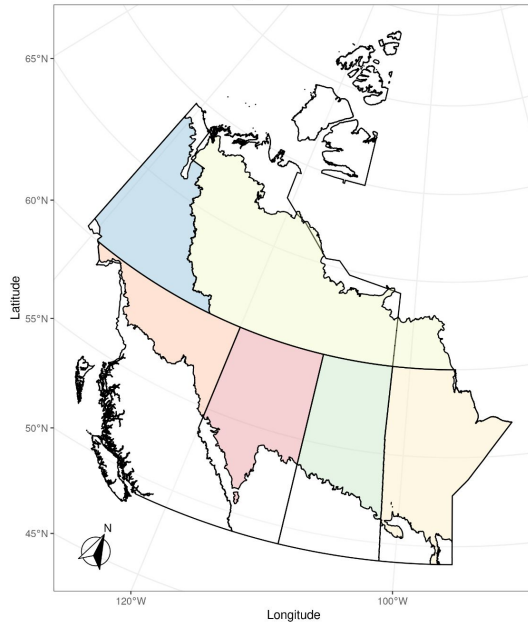
Past: UofA / ABMI

# Outline

1. Motivation
2. Raster data
3. Leaflet.js
4. The leaflet R package
5. Displaying rasters in leaflet
6. Serving files as Tile Map Service
7. Serving files as GeoTIFF
8. Summary

# The Western Boreal Initiative

Western Boreal Initiative Study Areas



## Funding

The Western Boreal Initiative is a collaborative co-production between multiple government agencies, university researchers, and indigenous groups.

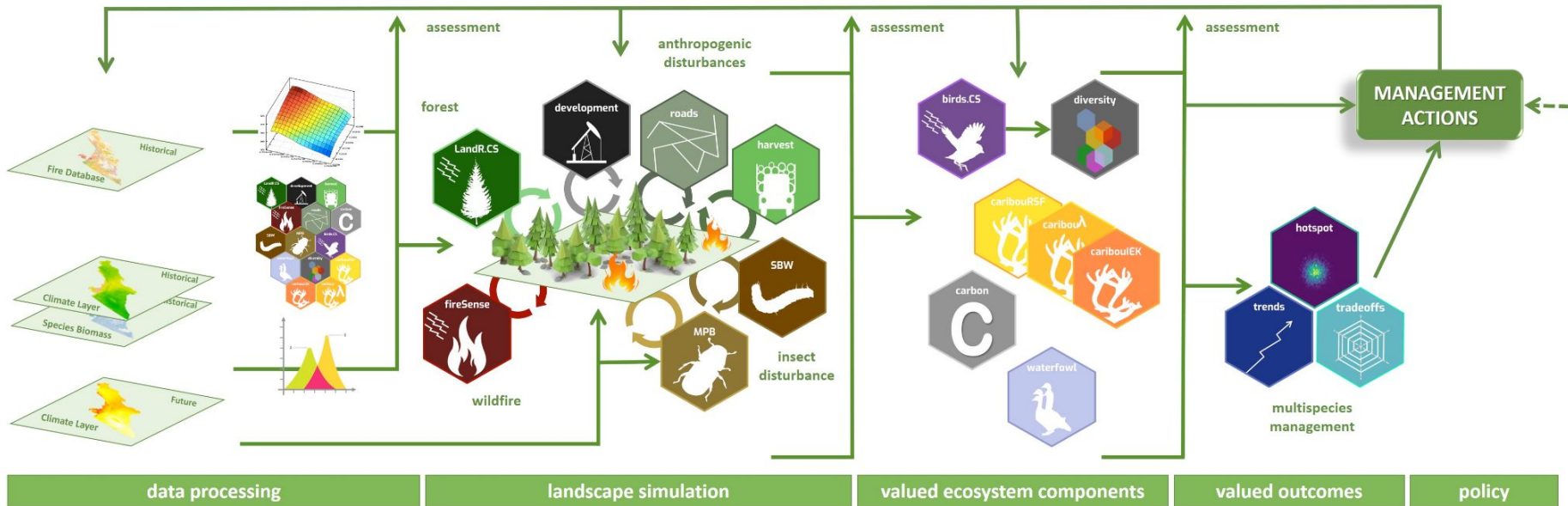
- Natural Resources Canada, Canadian Forest Service (NRCAN-CFS)
- Environment and Climate Change Canada, Canadian Wildlife Service (ECCC-CWS)
- Environment and Climate Change Canada, Science and Technology Branch (ECCC-STB)

## Project Leads

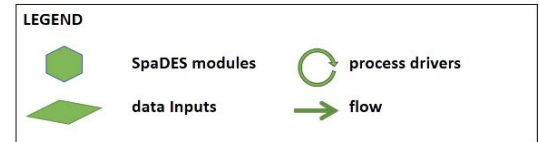
- Samuel Hache (ECCC-CWS)
- Mathieu Leblond (ECCC-CWS)
- Junior Tremblay (ECCC-CWS)
- Eliot McIntire (NRCAN-CFS)
- Tati Micheletti (UBC)



# The SpaDES framework



a) Overview of data and simulation module component integration



<http://doi.org/10.1111/ele.13994>



leafletjs.com



an open-source JavaScript library  
for mobile-friendly interactive maps

[Overview](#) [Tutorials](#) [Docs](#) [Download](#) [Plugins](#) [Blog](#)

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Apr 18, 2022 — [Leaflet 1.8.0](#) has been released!

Leaflet is the leading open-source JavaScript library for mobile-friendly interactive maps. Weighing just about 42 KB of JS, it has all the mapping [features](#) most developers ever need.

Leaflet is designed with *simplicity*, *performance* and *usability* in mind. It works efficiently across all major desktop and mobile platforms, can be extended with lots of [plugins](#), has a beautiful, easy to use and [well-documented API](#) and a simple, readable [source code](#) that is a joy to [contribute](#) to.

## Leaflet for R

### Introduction

The Map Widget

Basemaps

Markers

Popups and Labels

Lines and Shapes

GeoJSON and TopoJSON

Raster Images

Shiny Integration

Colors

Legends

Show/Hide Layers

Choropleths

## Introduction

[Leaflet](#) is one of the most popular open-source JavaScript libraries for interactive maps. It's used by websites ranging from [The New York Times](#) and [The Washington Post](#) to [GitHub](#) and [Flickr](#), as well as GIS specialists like [OpenStreetMap](#), [Mapbox](#), and [CartoDB](#).

This R package makes it easy to integrate and control Leaflet maps in R.

## Features

- Interactive panning/zooming
- Compose maps using arbitrary combinations of:
  - Map tiles
  - Markers
  - Polygons
  - Lines
  - Popups
  - GeoJSON
- Create maps right from the R console or RStudio
- Embed maps in [knitr/R Markdown](#) documents and [Shiny](#) apps
- Easily render spatial objects from the `sp` or `sf` packages, or data frames with latitude/longitude columns
- Use map bounds and mouse events to drive Shiny logic
- Display maps in non spherical mercator projections
- Augment map features using chosen plugins from [leaflet plugins repository](#)

# Hands-on

<https://github.com/analythium/leaflet-examples>

# Summary

- Many packages to deal with rasters:
  - {raster}, {terra}, {stars}
- Add raster to Leaflet:
  - Local files: slow to update
  - TMS tiles: up-front decisions for speed
  - GeoTIFF: efficient + on-the-fly updates
  - COG: best of both worlds but not universally supported
- Your choices can impact:
  - user experience
  - maintainability of your code/stack
  - hosting costs

Next Meetup: Sept 29, 2022



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Part of **R User Groups** – 88 groups ?

# Edmonton R User Group - Yegrug

Edmonton, AB  
 213 members · Public group ?  
 Organized by Peter S. and 3 others

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# YEGRUG reboot: 2021/2022

## 2022 + Today: Leaflet

- May 26: Creating a website for scientific and technical communication with Ronny A. Hernández Mora
- May 3: My organization's 1st R package – 1-day workshop with Mauricio Vargas
- April 28: eCharts4r for Interactive Visualization with Michael Thomas
- March 24: Step-by-step guide for parallelizing your R code with Peter Solymos
- February 24: YEGRUG and CalgaryR joint meetup and social
- January 31: Interfacing R with ArcGIS by Brandon Allen

## 2021

- December 16: ggplot2 intro with Marcus Becker
- November 25: Model fitting in the cloud with Mauricio Vargas
- October 28: R Open Science with Steffi LaZerte
- September 30: R in Production with Bruno Tremblay

# 2022/2023 Plans

Try in-person:

- Location? UofA, Downtown, other ...
- Probably hybrid, ~50% in person with live stream

Roster:

- Suggest topics that you are interested in
- Consider presenting if you have something to tell!

# Workshops



<https://forms.reform.app/analythium/yegrug-workshops-2022-2023/iucc85>

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