ASSOCIATION OF CANADIAN MAP LIBRARIES AND ARCHIVES
BULLETIN

Going Global: GIS Day(s) 2020

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Introduction

GIS day events have been taking place around the world since 1999. As a GIS professional Liz has been participating in GIS Day planning for the past 8 years. Due mainly to the founding of the London GIS Working Group, the last 4 GIS Day events have been in the format of a drop-in, interactive open house. The in-person event features interactive displays from GIS companies, research groups and professionals. Learn more about the GIS Day Open House on Western University's 2019 event page.

In light of COVID-19, when Liz started brainstorming what GIS Day 2020 would look like, she couldn't bear the possibility of cancelling it altogether. GIS lends itself so well to the virtual environment, that she started to plan for an entirely online event. With the help of Veronica and Sarah, the planning process began. The most important, and ultimately most challenging aspect of the event was that we wanted to keep it open to everybody. A virtual open house. Because of this goal, we also wanted to encourage collaboration across Ontario and extend the invitation to join the planning group to members of the OCUL geo-community, bringing together our normally disparate GIS Day events into one, online, virtual conference. In this initial call, GIS Day(s) began to take shape, with over 30 volunteers from 8 institutions, and 47 presenters from 23 companies and institutions. The following are the institutions that made up the core of the planning team:

- Brock University Maps, Data and GIS / Digital Scholarship Lab
- Carleton University Library
- Queen's University Library
- Trent University Library and Archives, Maps, Data and Government Information Centre
- Bibliothèque de l'Université d'Ottawa | University of Ottawa Library
- University of Waterloo, Geospatial Centre
- Western University, Department of Geography and Environment

The expressions of interest we received from prospective presenters were awe-inspiring. Not only that, but the variety and breadth of the presentation topics were impressive. We had researchers from public history and digital humanities to engineering and the sciences; GIS professionals from new to the field to veterans of digital mapping; projects using open-source to commercially available software; and everything in between. One day didn't seem like enough time to highlight the breadth and scope of presenters and projects. Our 6 lightning talks from 2019, became the 33 lightning talks of 2020. Suddenly, GIS Day became GIS Day(s) – a mini-conference.

The Planning Process

Liz Sutherland, Sarah Woloschuk, and Veronica Berry constituted the core planning group for administrative decision-making and handling key logistics and deliverables. We also involved a larger planning group, with members from across Ontario, to cover panelist and volunteer roles for the event. We used this team to discuss promotion, onboarding, scheduling, ideas and brainstorming for the sessions, and outreach to other institutions (both academic and professional) in two main planning meetings leading up to the event. We assumed that during the pandemic people would already be operating at 100% capacity emotionally or otherwise; as a result, having the three of us taking on core responsibilities made sense to maximize the number of volunteers we'd receive. This also ensured a range of roles, from more involved, to less involved, so that volunteers could take part no matter their schedule. It also allowed us to make decisions quickly, smoothly, and efficiently and then communicate those out to others involved.

In our first planning meeting, we discussed options for format of the event and brainstormed ideas for promotion and outreach. The core planning team also shared our expectations of the group and the various volunteer roles that were available to members of the team. In our second planning meeting, we finalized the schedule; determined gaps so we could pitch a last-call for presentations; requested volunteers to fill various roles; introduced our moderator guide and lightning talks guide; finalized the budget; and launched our website. The larger planning group was essential in filling out our schedule, planning the themes and focuses of each session, and distributing the workload for running the event. The larger planning committee did an amazing job facilitating the sessions during the event, managing technological situations and troubleshooting, and ensuring that panelists were supported while giving their presentations. Meanwhile, our core planning trio made it our responsibility to keep track of all essential files, and to create and maintain any documentation related to the event.

In order to help the event run smoothly and support volunteers in their roles as host or moderator for the event, we created a Moderator's Guide. This guide included details about Zoom Webinar functionality, since we had purchased a license to use during the event above and beyond what Zoom Meetings could afford us. Zoom Webinar had a number of features which were different from Meetings, so the Moderator's Guide aimed to summarize these; highlight key features that hosts and moderators could use while facilitating each GIS Day(s) session; and outline specifics for each role, including checklists for before, during, and after each session as well as canned messages to read from or copy into the chat as needed.

The contents of the guide were planned, and then further refined and expanded based on feedback during some of the planning meetings to ensure that all content desired by the guide's users (volunteers for the event) was included. Once a final version of the guide existed, it was distributed to all volunteers. We hosted two training sessions for volunteers to attend, to outline what they could expect for the sessions they were hosting and moderating and to review the contents of the Moderator's Guide. The sessions also included live opportunities for testing out special features in Zoom Webinar, such as the Q&A window and promoting/demoting users to different roles.

Delivery

The event itself comprised of several different types of presentations and sessions. Short, 7-minute lightning talks, longer 20-minute demonstrations, and full 1-hour hands-on tutorials. We supported synchronous and asynchronous delivery methods while encouraging presenters to participate in

the live Q&A. Sessions were recorded with the permission of presenters, and are in the process of being edited for upload to Western University's Institutional Repository, Scholarship@Western.
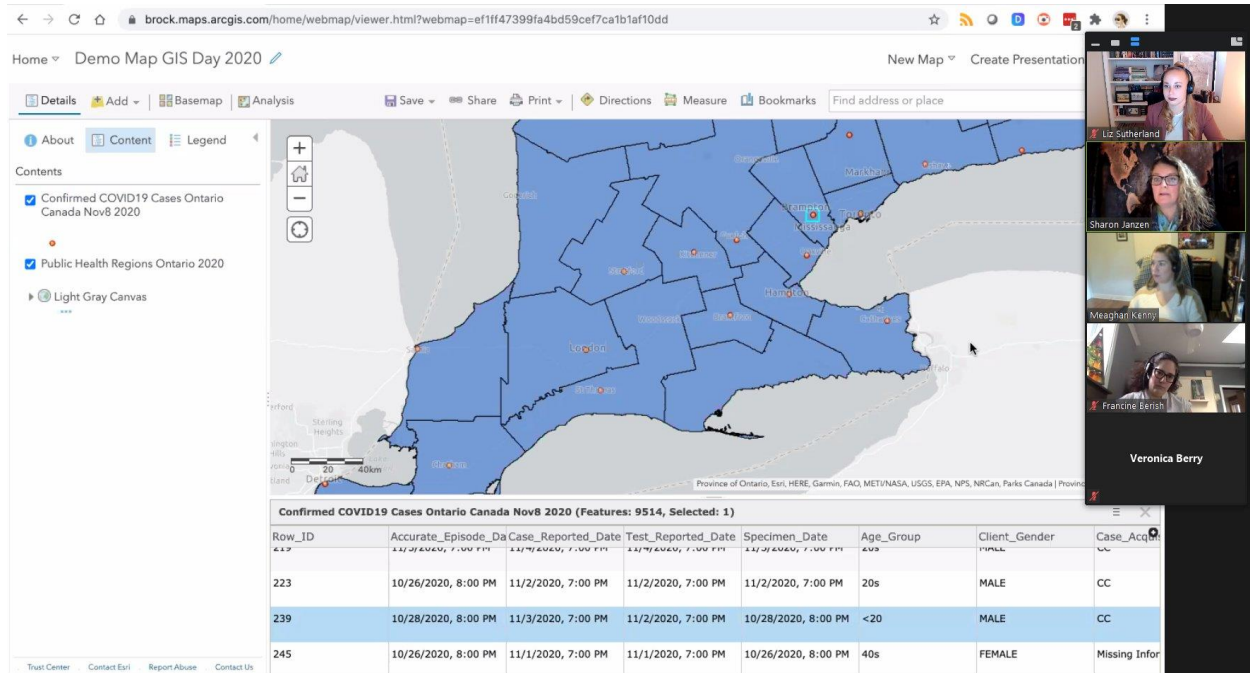

Figure 1. Sharon Janzen from Brock University Maps, Data and GIS / Digital Scholarship Lab presenting her tutorial "Introduction to ArcGIS Online (Classic)" mapping COVID-19 cases in Peel Region.

Session Summaries (from Presenter Dash)

GIS Day(s) included a total of 33 lightning talks, 2 networking sessions, 1 professional meeting, 2 tutorials, and 8 demonstrations (and one virtual geography-themed trivia evening). Details for all sessions are available in Appendix 2 and through the interactive program (built using ArcGIS Dashboards and Survey123). By popular vote from our feedback form, the top sessions were:

The Geography of Pokémon GO by Vivian Kong (Lightning Talk)

- This presentation will talk about the history of Pokémon GO and the different GIS processes that are used to create the widely successful augmented reality mobile game, as well as a brief discussion on the use of GIS in other video games. A live demonstration of Pokémon GO will also be presented (technology permitting).

Using Survey123 and Portal for ArcGIS to manage a large team for COVID-19 economic recovery research by Alexander (AJ) Wray (Lightning Talk)

- The Food Retail Environment Study for Health and Economic Resiliency (FRESHER) is tracking the impacts of COVID-19 on the retail food industry in Ontario, Canada. FRESHER involves mapping businesses that existed prior to the state of emergency announced in March 2020, and then tracking their operating status over the course of the

pandemic situation. To organize this 'big data' project, Survey123 and Portal for ArcGIS was deployed to manage a team of ~60 people. This lightning talk will provide an overview of the FRESHER mapping process, and lessons learned from our experiences over the past 6 months.

Employing the density and distribution of wild turkeys across Ontario by Jennifer Baici (Lightning Talk)

- I am using community-collected wild turkey observations and MaxEnt modelling to produce estimates of wild turkey density across Ontario. Wild turkey observations were collected using eBird and iNaturalist. In Ontario, turkeys are a reintroduced and harvested species. Thus, understanding current turkey densities and developing robust methodology to monitor population changes over time is essential in ensuring that wild turkeys continue to persist in Ontario, in sustainable numbers, for many years to come. I will highlight my use of eBird and iNaturalist, MaxEnt, ArcMap, and RStudio.

How a Kiwi surveyor ends up doing GIS in Scotland by Craig MacDonell (Lightning Talk)

- A brief insight into how a young Kiwi ends up working at a prestigious Scottish academic institution in GIS!! The presentation will cover numerous projects he has covered whilst working here, what he does on a day to day basis, some tips and tricks he has picked up both in Scotland and also New Zealand related to both teaching and research, as well as what he hopes to achieve going forward both personally and for his current institution.

Mapping the Loyalist Migration by Tim Compeau and Natalie Boros (Lightning Talk)

- Dr. Tim Compeau and Natalie Boros will discuss Loyalist Migrations, a SSHRC-funded partnership between the Huron Community History Centre, the United Empire Loyalist Association of Canada, and Western Library's Map and Data Centre. This project aims to visualize the migrations of thousands of individuals, free and enslaved, wealthy and poor, who left the United States during and after the American Revolution.

Getting Started with Story Maps by Catherine-Anne Currie (Demonstration)

- Story Maps is a software that is available to all Western Staff, Faculty and Students that combines narrative text, images, maps and media into an online web application! Story Maps can be used for a multitude of different purposes but it is a really great way to visualize any data that you have and allows you to tell a story with it! This demonstration will go over the basic functions of Story Maps to get you started with your first one!

Hidden Histories of Southwestern Ontario by Thomas Peace (Lightning Talk)

- History is about community. It is easier for some communities to share their histories than others. The Hidden Histories of Southwestern Ontario project aims to mitigate some of those challenges by using the tools of ArcGIS Online to tell a more diverse and complex history of our region.

The Northern Tornadoes Project - Mapping Canada's Tornadoes by Aaron Jaffe (Lightning Talk)

- The Northern Tornadoes Project is a collaboration between Western University, ImpactWX, and several other parties that aims to improve the detection, prediction, and mitigation of tornadoes across Canada. Many of the captured tornadoes are documented via interactive online maps in ArcGIS Online, with data collected from various sources, including Survey123.

Execution

GIS Day(s) saw attendees from around the world, volunteers from across Ontario and presenters from as far as Glasgow, Scotland and the Netherlands.
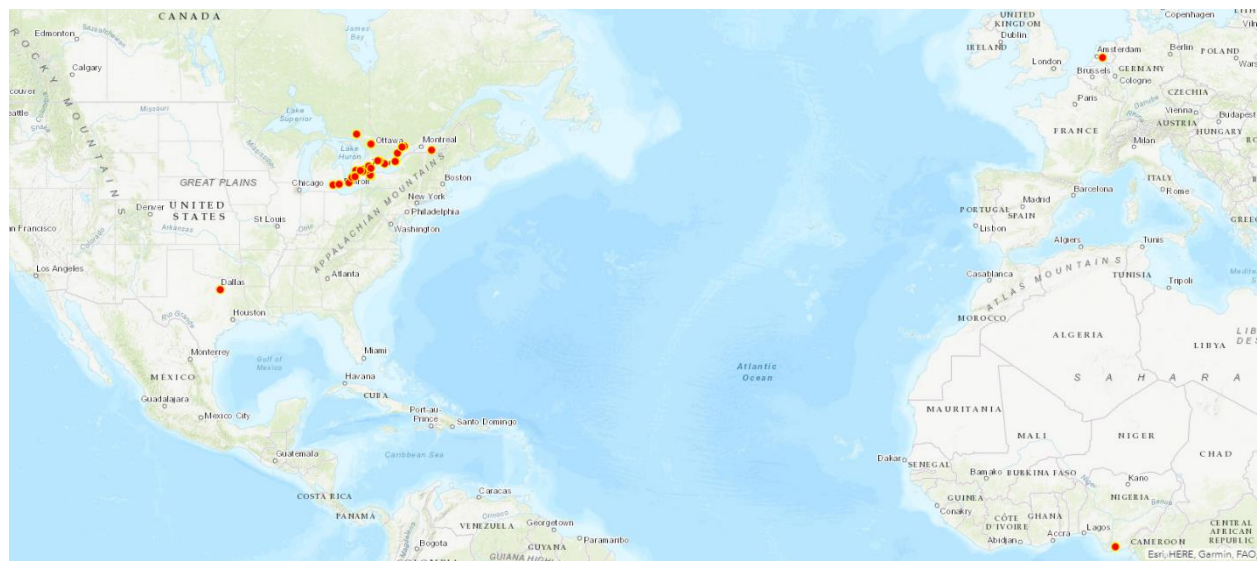

Figure 2. Distribution of responses received in the feedback form out of a total of 86 respondents, ranging from Nigeria to the Netherlands to Texas. This map was retrieved from the Esri Survey123 page for the feedback form.

Session attendance numbers ranged broadly across sessions and within the sessions themselves. Ranging from 9 attendees at the networking lunch, to 52 attendees at the GIS & Libraries Lightning Talk Session. The sense of community and collaboration during the sessions made it clear an event like this wasn't merely an extra webinar, but a way of connecting our disconnected world through GIS.

We turned to the attendees' insightful comments to assess the high points of our GIS Day(s) mini-conference. Through this assessment three consistent themes emerged from attendees' feedback. The first theme concerned the access to our conference. We found that attendees enjoyed the ease with which they could find the information for our conference, that the conference was free and that the sessions were open to all regardless of their experience (or lack thereof) with GIS. The second theme that emerged from attendees' feedback dealt with the variety of the sessions offered. Attendees enjoyed the range of topics as it gave them the chance to learn about many different areas of GIS in a short, bite-sized, presentation. Finally, the third theme was how easily the

attendees could comprehend and follow along with the presentations. This third theme emerged specifically in comments about the lightning talks as attendees understood the presentation even if they were not GIS practitioners. Below are some examples of comments we received from attendees:

- The sessions were really interactive and the 7-minute lightning sessions were my favourite part for sure!
- As someone not actively researching for a living I am very happy with these "Lightning" presentations. Succinct, pithy, and seeing everyone grin ear to ear at least once during their presentations is also heart warming to see. It can be very intimidating to someone outside academia to learn from professional scientists but there were only a few words I needed to google afterwards as opposed to what I had originally assumed might be entire presentations haha. Great Job everyone!
- I really liked the lightening talks that were informative on various topics and relatively simple to understand.

Figure 3. Word cloud built using Survey123 in answer to the question "What did you find most memorable about GIS Day(s) 2020?"

Several recommendations for virtual conference hosting emerged during our review of the event.

- Think about security, but don't let security limit accessibility to the conference.
    - Despite having open, public-facing links, and an 'everyone is welcome' policy, we only had one "zoom bomber". We suspect our success was partly due to the controls set up in advance to prevent these incidents from occurring.
- Think about using the Q&A feature but be aware of its limitations.
    - Although the Q&A function was a huge asset to using Zoom Webinar, it wasn't saved with the recordings, which meant we couldn't review questions asked during the discussion period.
    - We supported Q&A during the presentations, but participants tended to wait to the end of the presentations to ask their questions. Most likely, this tendency was due to many of them watching on a single monitor.

- o   Having moderators for each session helped facilitate discussion.
- Test your technology in advance but be aware that even though you prepare things will still surprise you the day of.
  - o   For instance, we only had one license for the Webinar feature, and this meant that we could not start a new session without ending the previous one since the person with the license attended all sessions.
  - o   We also had to start broadcasting our webinar early in many cases in order to allow all panelists in.
  - o   That said, we would absolutely use Zoom's webinar feature again. It definitely simplified concerns around privacy, security, and virtual presentation logistics.

Summary

Who knows where the world will be by this time next year. Even if things 'return to normal' you can't deny the success of this years' GIS Day(s) and we think it's safe to say we'll be offering some combination of in-person and virtual next year.

We look forward to GIS Day each year. It gives members of the GIS community opportunities to share their knowledge, to discuss new possibilities and to generally nerd-out over digital mapping. The purpose? To share, delight and dazzle our audiences with the best and brightest of the GIS world. And isn't anything mapped, brighter anyway?

We look forward to seeing how we improve next year, please reach out if you'd like to get involved and a special thanks to all those that made this event possible. To Sarah and Veronica for helping Liz make the tough decisions. To the GIS Day(s) Planning Team, who stepped up from across Ontario to put this event turned mini-conference into a reality. To the presenters and attendees who brought top-notch presentations and discussions to each day of the event. As always, happy mapping!

Acknowledgements

Authority), Terry Chapman (Upper Thames River Conservation Authority), Heather Peacock (Western University), Jack McIlraith (Western University), Natalie Boros (Huron University College), Tom Peace (Huron University College), Tim Compeau (Huron University College), Scott Smalley (Huron University College), Ben Harris (Huron University College), AJ Wray (Western University), Caroline Kayko (University of Michigan), Malcolm Little (Western University), Aaron Jaffe (Western University), Al Proulx (Simcoe County), Debbie Jenkins (Trent University), Jennifer Baici (Trent University), Graeme Smith (Trent University), Aiden Poole (Bluewater Power), Daniel Kpienbaareh (Western University), Jody Yu (Western University), Robin Kwik (Western University), Nolan Frew (Western University), Catherine-Anne Currie (Western University), Martin Chandler (McGill University), Amber Leahy (Scholars Portal), Jonathan Murphy (Go Geomatics), Dan Jakubek (Ryerson University), Zack Macdonald (Western University), Michael Leahy (Esri Canada), Tom Petrella (Western University), Eva Dodsworth (University of Waterloo), Markus Wieland (University of Waterloo), Chimira Andres (European Space Agency), Marikka Williams (Fleming College), Collin Branton (Upper Thames River Conservation Authority), Beth Wrona (Upper Thames River Conservation Authority), Philip Simm (Upper Thames River Conservation Authority), Roxanne Lafleur (University of Ottawa)

Liz Sutherland is the GIS Specialist for Western Libraries. She holds a B.Sc. in Geographic Information Science (2016) from Western University and has led the planning of GIS Day for various organizations over the last 8 years. Her passion for GIS and digital mapping permeates her role at Western as she connects researchers to the data, software and expertise they need to incorporate GIS in their projects.

Sarah Woloschuk is Library Assistant to the Research and Scholarly Communications Team at Western Libraries! Holding an MLIS (2019) from Western University and her B. Ed (2015) from University of Saskatchewan, she was thrilled to assist with planning GIS Day(s) 2020. Some of her favourite maps include the map of the Old Kingdom from Garth Nix's "Abhorsen Chronicles" and the bathymetric depth map of Lake Superior hanging in her wife's apartment.

Veronica Berry is the Digital Preservation & Digital Collections Co-op Assistant at Western Libraries for the 2020 Summer and Fall terms. She has a B.A. in History from Carleton University (2019) and is currently completing her MLIS at Western University. She was entirely new to GIS prior to her co-op in May 2020 but through her experience assisting with digitally preserving GIS data in Scholars Portal's Permafrost service she's learned a lot! Her favourite map memory is flipping through an Ontario atlas to try and pass the time on long family car rides.

Appendix 1: Notable Feedback

- Variety, shortness of talks and accessibility.
- Thursday morning's lightning talks were all amazing! As someone interested in conservation and GIS, it was really exciting to see all of the opportunities within the field.
- This was an amazing GIS day (s)...sadly, I will miss tomorrow's sessions. I descended from UE Loyalists and during the demo, I brought up the map. My great (x5) Grandfather William Fortune was included on that list. My grandmother, a genealogist would have have loved this interactive portal. All of the presentations I attended were amazing.
- The wide amount of topics. Allowed for lots of cool topics to be covered while not making it take too long.
- The sessions were really interactive and the 7-minute lightning sessions were my favourite part for sure!
- The quick rotation provided many cool talks on many different topics, kept the flow going but also gave enough time for people to present.
- Short lightning talk format was great! Very organized event. Spatial ecology block was very well done and interesting. Loved that there were representatives from many different organizations. Collector tutorial was very informative. I enjoyed the trivia.
- I really liked the lightening talks that were informative on various topics and relatively simple to understand.
- I really enjoyed the accessibility of the virtual sessions.
- I really enjoyed that on the Thursday 10:00 AM session, 8 of the 9 people on screen were women. It is great to see so much powerful female energy in science.
- I really appreciate the chances to see projects in motion, to see how people are really using this technology and these techniques in real world problems.
- I liked the fact that GIS Day was organized and did take place in this the 2020 year of Covid-19. Furthermore that the virtual disadvantage was flipped to sn advantage, extending the Day fourfold and expanding the space of the venue to the virtual 'world' space, bringing in people from further afield. Go Liz - Excellent Job!!!
- I enjoyed the format of the the presentations, the perfect length to allow the presentations to be engaging and long enough to get the basic information of the projects.
- Covid research struck me as so relevant for our current environment. Even when back to'normal' should continue to offer virtual sessions for those who can't attend local event and broaden participation.
- As someone not actively researching for a living I am very happy with these "Lightning" presentations. Succinct, pithy, and seeing everyone grin ear to ear at least once during their presentations is also heart warming to see. It can be very intimidating to someone outside academia to learn from professional scientists but there were only a few words I needed to google afterwards as opposed to what I had originally assumed might be entire presentations haha. Great Job everyone!

Appendix 2: Session Summaries

For information about the presenters, please review the interactive-map based program.

A Brief Introduction to QGIS by Martin Chandler (Demonstration)

ArcGIS is so powerful, why would we ever need to look at QGIS? In this demonstration, I will give a brief tour of QGIS, and show how it is just as powerful (if a little less reliable) as ArcGIS, and discuss why it's worth giving a bit of time to in both shorter and longer term learning and working.

Building an Open Data Site by Nolan Frew (Demonstration)

Learn the basics of building an open data site using ArcGIS Hub. With the Huron Community History Centre's Collaborative Mapping site as an example, this demonstration will cover how to tailor Hub templates to fit the purpose of your organization. We will also touch on the ArcGIS Hub interface, the embedding of Arc Experiences, and the integration of surveys built in Survey123.

Contribute to an Open-Source Web Mapping Project by Al Proulx (Lightning Talk)

You'll get a crash course and how to contribute to our open-source web mapping project on GitHub or simply use it to learn. It's built using React/OpenLayers/Geoserver. If you have zero experience, there will be resources on how to get you started. All software described is FREE for anybody. Visit opengis.simcoe.ca to see the live beta.

Creating a Richness-Risk Index for Conservation Prioritization by Heather Peacock (Lightning Talk)

Where should we focus conservation efforts? Where there are the most species or where species are most at risk? These do not always overlap, and focusing on areas with high total richness won't necessarily include species most at risk. Here I present a new richness-risk index, a composite measure of species richness and extinction risk, to better show global conservation priorities for primates. Using a combination of methods - google earth engine, r and ArcMap, I have mapped primate species richness-risk and highlight key areas to focus conservation efforts.

Data fusion approaches for studying geomagnetic navigation in migratory animals by Jed Long (Lightning Talk)

Many species of wildlife are believed to use the earths geomagnetic field to assist in navigation during migration. In this Lightning Talk, I will introduce a new tool we are developing to enable scientists to combine satellite-based measurements of the earths geomagnetic field with animal tracking data to answer new and exciting questions in movement ecology.

Data transformation and geo-location of historical Vernon directories by Eva Dodsworth & Markus Wieland (Demonstration)

This session will summarize the journey from printed historical text to a discoverable and mappable Leaflet project. Starting with 100 year old Vernon city directories, the speakers will share their project progress so far highlighting some of the conversion, geolocator and presentation tools used to develop the historical GIS product.

Delineating Top of Valley Slope on a Watershed Scale Using ArcGIS Pro by Beth Wrona (Lightning Talk)

Top of Valley Slope delineation using 3D capabilities in ArcGIS Pro for Development Regulation Boundary updates on a watershed scale.

Drones in libraries: the development of an interdisciplinary research service using drones and 3D modeling technologies at Ryerson University Library by Dan Jakubek (Demonstration)

At Ryerson University Library, we collaborate with researchers across a variety of disciplines that require capturing and modeling the real world in 3 dimensions (3D). To do so, several 3D reconstruction technologies have been applied, varying in cost and ease of use. Some applications require capturing large areas for which a Remotely Piloted Aircraft System (RPAS) or "drone" presents a cost effective option for data acquisition. On June 1, 2019, new rules for flying a RPAS in Canada came into effect, requiring drone pilot certification to operate any drone between 250 g and 25 kg. In response to new regulations and the needs of our researchers, the Library has initiated the development of a research service dedicated to supporting the use of drones and 3D modelling technologies. This presentation will highlight our progress to date and introduce future directions for our research and service.

Employing the density and distribution of wild turkeys across Ontario by Jennifer Baici (Lightning Talk)

I am using community-collected wild turkey observations and MaxEnt modelling to produce estimates of wild turkey density across Ontario. Wild turkey observations were collected using eBird and iNaturalist. In Ontario, turkeys are a reintroduced and harvested species. Thus, understanding current turkey densities and developing robust methodology to monitor population changes over time is essential in ensuring that wild turkeys continue to persist in Ontario, in sustainable numbers, for many years to come. I will highlight my use of eBird and iNaturalist, MaxEnt, ArcMap, and RStudio.

Estimating yield of household groundnut fields in rural smallholder farming systems and its implication for food security by Daniel Kpienbaareh (Lightning Talk)

The study used random forest regression analysis to predict groundnut yields based on yield data, in-situ leaf area index and vegetation indices. I used ArcGIS Pro and ArcMap for computing vegetation indices and creating yield prediction maps.

Follow me closely: Developing a plan for digital preservation of GIS data by Leanne Olson & Veronica Berry (Lightning Talk)

We hope you're ready for a digital preservation adventure! As with any journey we'll come across some dangers (oh no bit rot!) but don't fret. Leanne and Veronica have some digital preservation solutions that will help overcome these dangers. In this lightning talk, we'll cover three common challenges to keeping your data safe and how to plan for them. So pack your bags, follow us closely and get ready for our GIS-digital preservation exploration.

Geospatial Data Collection for Agriculture Research by Jody Yu (Lightning Talk)

As technology rapidly advances, agriculture research has shifted to make use of new geospatial data collection methods. Unmanned Aerial Vehicles (UAVs, a.k.a. drones) can provide cost-

effective, high spatial and temporal resolution data compared to traditional satellite or aerial-based platforms. This presentation will cover how UAVs can be used in the farms of the future - more resilient, higher quality crops at lower costs for people and the environment.

Getting Started with Story Maps by Catherine-Anne Currie (Demonstration)

Story Maps is a software that is available to all Western Staff, Faculty and Students that combines narrative text, images, maps and media into an online web application! Story Maps can be used for a multitude of different purposes but it is a really great way to visualize any data that you have and allows you to tell a story with it! This demonstration will go over the basic functions of Story Maps to get you started with your first one!

Girls Don't Go: A geospatial analysis of mobility in the Emergency Medicine Residency match by gender by Caroline Kayko (Lightning Talk)

This lightning talk will outline the Girls Don't Go project, using ArcMap to investigate factors that may influence how far a medical student in the United States will travel for their residency program.

GIS applications in Astronomy by Robin Kwik (Lightning Talk)

My presentation will explore similarities between geography and astronomy as well as applications of GIS/remote sensing in the field of astronomy. I will present on a particular method of georeferencing telescope imagery using SAOImageDS9, an astronomy-based software, and open-source QGIS.

GPS in GIS: Merging tracks into spatial objects for analysis by Malcolm Little (Lightning Talk)

Presentation will briefly delve into the integration of GPS-recorded data with spatial objects, and how to analyze the weighted objects using space-time pattern mining tools available in ESRI's ArcGIS Pro. Example using children volunteer's GPS tracks, and personal tracks of presenter in mall venue will be utilized.

Hidden Histories of Southwestern Ontario by Thomas Peace (Lightning Talk)

History is about community. It is easier for some communities to share their histories than others. The Hidden Histories of Southwestern Ontario project aims to mitigate some of those challenges by using the tools of ARCgis online to tell a more diverse and complex history of our region.

Historical GIS and Virtual Environments for Immersive Gamed Pedagogy by Zack MacDonald (Lightning Talk)

The Environments of Change SSHRC Partnership Grant brings together a multi-disciplinary team of scholars to study and recreate virtually the built and natural environments of late medieval England. This lightning talk highlights how our team has used Historic maps, remote sensing data, and GIS to analyze and reconstruct the historical environment around Herstmonceux Castle and the Pevensey Levels in East Sussex, England. To begin, it showcases the medieval, archival, and born-digital source materials that have been used to inform our reconstructions. It provides examples how these materials have informed the reconstruction of lost medieval structures, and landscape reconstructions. Finally, it provides a brief preview of the Augmented Reality game currently under development, and future project goals.

How a Kiwi surveyor ends up doing GIS in Scotland by Craig MacDonell (Lightning Talk)

A brief insight into how a young Kiwi ends up working at a prestigious Scottish academic institution in GIS!! The presentation will cover numerous projects he has covered whilst working here, what he does on a day to day basis, some tips and tricks he has picked up both in Scotland and also New Zealand related to both teaching and research, as well as what he hopes to achieve going forward both personally and for his current institution.

How to find your first Geospatial Job by Jonathan Murphy (Tutorial)

Jonathan Murphy, Canada's geospatial career coach will be sharing his experiences working as a GIS specialist and geomatics manager in Canada and abroad. Some of the projects Jonathan has worked on include crisis mapping for the Ebola response with the UN in Switzerland, wind and solar farms in Ontario, Oil & Gas in Alberta, and in Italy on archaeological projects such as mapping Rome. This special geospatial career talk only presented for the occasion of GIS day will cover topics of particular interest to students and new graduates. Jonathan has worked with some of the largest geomatics companies in Canada helping them find talented individuals so he will also be sharing his insights from the other side of the interview table. If you are interested in learning more about the geospatial job market in Canada and the best ways to find a dream job in GIS and remote sensing we hope you will join us for this special event.

Identifying suitable habitat and movement corridors for endangered salamanders on Pelee Island by Graeme Smith (Lightning Talk)

Habitat loss has caused a severe decline in amphibian populations globally. Pelee Island, Ontario is home to at-risk populations of Small-mouthed Salamanders (A. texanum) and Unisexual Ambystoma (Small-mouthed Salamander dependent population). We assessed salamander habitat suitability (using MaxEnt) and connectivity (using Circuitscape) across the island, working with the Spatial Analyst and Data Management toolkits to create and analyze rasters and shapefiles. The Linkage Mapper toolkit was also added to identify habitat corridors. Ultimately, we found that these populations are not well connected and there is a limited range of suitable habitat conditions. Based on these findings, the protection and enhancement of habitat to create dispersal corridors should be prioritized by conservation groups.

Insulin 100: Sir Frederick Banting by Scott Smalley (Lightning Talk)

My presentation is on my experience curating a digital exhibit that commemorates the life and times of the discoverer of Insulin, Sir Frederick Banting. This work has been a collaboration between the Huron Community History Centre and Defining Moments Canada, a Canadian heritage organization that commemorates moments in Canada's history. The exhibit has been built on the Arc GIS platform.

Introduction to ArcGIS Online (Classic) by Sharon Janzen (Tutorial)

Using the classic version of ArcGIS Online, we will explore the interface, access a few data sources, perform analysis, create some funky maps and set it all in motion using the presentation module of the website! It may be a lot to cram into a short 1-hour introductory tutorial but how long is a roller coaster ride? And don't you just love the thrill of it all? Attendees should have the equivalent of an Esri organizational account. Or sign up for a free Esri Developer's Subscription! No experience necessary.

Landscape connectivity among island-dwelling caribou by Debbie Jenkins (Lightning Talk)

Connectivity is important to the persistence of wildlife. It facilitates movement and geneflow, and is critical to the maintenance of genetic diversity and metapopulations. Yet, wildlife connectivity is increasingly threatened by environmental degradation. Opportunities to protect natural habitats and their linkages exist, but are quickly vanishing. Here, we evaluate the implications of natural and anthropogenic features on the genetics of Arctic Island caribou. A vagile and wide-ranging species, caribou are a meaningful test case to assess and map connectivity at broad spatial extents. In ArcGIS, Circuitscape and R, we use genetic fingerprinting and a suite of landscape variables to model the importance of sea ice, land cover, and topography to caribou geneflow. Ultimately, these results will permit species-specific mapping of habitat connectivity for this iconic Arctic species. As human interests advance north, the implications for conservation are profound.

Lidar DEM to contours...I'll just click this by Philip Simm (Lightning Talk)

This presentation will discuss some of the details about creating contours from a high-resolution DEM using ArcGIS.

Mapping the Loyalist Migration by Tim Compeau and Natalie Boros (Lightning Talk)

Dr. Tim Compeau and Natalie Boros will discuss Loyalist Migrations, a SSHRC-funded partnership between the Huron Community History Centre, the United Empire Loyalist Association of Canada, and Western Library's Map and Data Centre. This project aims to visualize the migrations of thousands of individuals, free and enslaved, wealthy and poor, who left the United States during and after the American Revolution.

Navigating the Scholars GeoPortal by Amber Leahey (Demonstration)

Scholars GeoPortal provides researchers across Ontario with access to a variety of local, provincial, and national geospatial datasets. The interactive map display allows users to search for data, preview data, and download data directly. In this presentation, I will highlight some of the ways you can navigate in the portal to find and use data for research and teaching. Scholars GeoPortal is open and accessible to anyone, affiliated Ontario researchers can login to access the full collection (http://geo.scholarsportal.info/).

Nitrate contamination in southern Ontario groundwater: using data mining and subsequent field sampling to inform catchment-scale biogeochemistry by Michael Schmidt (Lightning Talk)

My presentation will examine the use of ArcPro (ESRI GIS software) to integrate publicly-available datasets. Building on previous work, land-use/land-cover will be examined within a circular buffer about water wellheads. In this manner, relationships between groundwater geochemistry and surficial land uses can be examined.

Our Experience with ArcGIS Collector & Dashboard for Agricultural Windshield Surveys by Tom Dufour (Lightning Talk)

In support a water quality project requirement for windshield surveys of agricultural fields, GIS staff at ERCA looked to leverage ArcGIS Collector to replace traditional paper maps in the field. The successful experience working with Collector and ArcGIS Online will be outlined as well as the survey results which are being complied for visualization using ArcGIS Dashboards.

Randomizing GPS Tracking Trajectories to Model Social Structure in Feral Swine by Jack McIlraith (Lightning Talk)

Using GPS tracking, researchers can detect contacts between animals, which can be used to quantify and describe associations between animals in networks or graphs. However, animals may come in contact with each other for a variety of reasons, such as the distribution of resources, or social behaviour. From the GPS tracking data, we can develop null-model association networks to test for various reasons for association rates between individuals. Here, we randomize the GPS tracking data of individual feral swine by day, while preserving the within-day trajectories to generate null models where movement is still affected by the distribution of resources or barriers on the landscape, but synchronous movement is disrupted by the reordering of days. Using this method, we find evidence to support the existence of previously identified social groups, as well as unidentified social groups in the study population. We perform and present our analyses in R.

Reporting on the Demarest Rescue by Benjamin Harris (Lightning Talk)

This presentation focuses on the global news coverage of a rescue of a boy being kidnapped by a slaver in Chatham, Ontario. I will explain how the arc-GIS software helped in making a collection of random newspaper clippings into a easy to navigate resource, that I could link together as a story

Scaling Back: Mapping Restrictive Public Health Measures by Tom Petrella (Lightning Talk)

Our project aims to analyze the ways in which various jurisdictions across Canada and Ontario have responded to the COVID-19 pandemic and its subsequent impacts. Specifically, we are examining the legal, ethical and policy dimensions that must be considered when enacting restrictive public health measures such as physical distancing, stay home orders, and masks, among others. We hope to use GIS to make an interactive map and timeline of the measures identified above. With this data and timeline, our end goal is to analyze the legal, ethical, and policy dimensions that must be considered when "scaling back" We hope that this tool can inform public health decisions for future pandemic preparedness and response.

Story maps, web apps and mobile apps to safely deliver a field-based course during COVID-19 by Marikka WIlliams (Lightning Talk)

I will share how I utilized ArcGIS Story Maps, Web Apps and an ArcGIS Collector Mobile App to virtually prep for and safely deliver an in-person physically distanced Geomatics in Surveying Boot Camp during the COVID-19 pandemic.

The Geography of Pokémon GO by Vivian Kong (Lightning Talk)

This presentation will talk about the history of Pokémon GO and the different GIS processes that are used to create the widely successful augmented reality mobile game, as well as a brief discussion on the use of GIS in other video games. A live demonstration of Pokémon GO will also be presented (technology permitting)

The impact of climate change on Canadian archives by Amanda Oliver (Lightning Talk)

This study aims to identify Canadian archives that are at risk for climate change threats and to present a snapshot of current practices around disaster planning, sustainability, and climate adaptation. These objectives were achieved by analyzing the geographic locations of Canadian

archives in relation to projected climate data and by analyzing the results of a survey distributed to staff at Canadian archival repositories. All Canadian archives will be impacted by projected changes in both annual mean temperatures and precipitation to the year 2080. This research underscores the importance of developing climate adaptation strategies, considering the sustainability of archival professional practice, increasing the resilience of archival facilities and collections, and strengthening our disaster planning and recovery methods.

The Northern Tornadoes Project - Mapping Canada's Tornadoes by Aaron Jaffe (Lightning Talk)

The Northern Tornadoes Project is a collaboration between Western University, ImpactWX, and several other parties that aims to improve the detection, prediction, and mitigation of tornadoes across Canada. Many of the captured tornadoes are documented via interactive online maps in ArcGIS Online, with data collected from various sources, including Survey123.

Using GIS data to find and extract locations in historic texts by Rebecca Bartlett (Lightning Talk)

Researchers consulting Carleton University Library's Ottawa Resource Collection are often looking for information on specific locations such as neighbourhoods, buildings, or addresses. When the Collection began to be digitized, an opportunity arose to build a software tool to extract geographic locations within the City of Ottawa. The resulting tool outputs geospatial coordinates (points, lines, and polygons) for each found location, utilizing openly available GIS datasets to build a lexicon of locations to extract from the texts.

Using Lidar DTM for Hydrology by Collin Branton (Lightning Talk)

The presentation will highlight how a high-resolution digital terrain model (DTM) can significantly improve the delineation of watercourse lines, watershed boundaries, and help improve the accuracy of flood plain mapping. The work is primarily done using ArcGIS and the ArcHydro tools, with flood plain mapping using HEC-RAS and the Arc HEC-GeoRAS plugin.

Using Survey123 and Portal for ArcGIS to manage a large team for COVID-19 economic recovery research by Alexander (AJ) Wray (Lightning Talk)

The Food Retail Environment Study for Health and Economic Resiliency (FRESHER) is tracking the impacts of COVID-19 on the retail food industry in Ontario, Canada. FRESHER involves mapping businesses that existed prior to the state of emergency announced in March 2020, and then tracking their operating status over the course of the pandemic situation. To organize this 'big data' project, Survey123 and Portal for ArcGIS was deployed to manage a team of ~60 people. This lightning talk will provide an overview of the FRESHER mapping process, and lessons learned from our experiences over the past 6 months.

Utility GIS in action: Sarnia oversized load corridor by Aiden Poole (Lightning Talk)

The Oversized Load Corridor (OLC) is a designated protected route on existing roadways connecting fabricators to the Port of Sarnia for the unimpeded import/export and trans-shipment of oversized products to and from fabricators' locations and Sarnia-Lambton's industrial base. Bluewater Power's job is to clear a path that can accommodate a vessel that is 9m wide, 9m high and 45 m long over 26kms of roadway. My job is to capture the changes our engineers have made to accommodate this size in GIS. Using ArcFM & the OLC project, this lightning talk will show

you what a typical electrical GIS system looks like and how it is utilized. For more information on the OLC project please visit: www.sarnia.ca/oversized-load-corridor/

Utility of hyper-resolution Lidar as a tool for planetary geomorphology in the Canadian High Arctic by Chimira Andres (Lightning Talk)

Permafrost underlies 50% of the Canada's terrain and underlies 24% of the world land area. It is one of the major driving forces in the generation and evolution of patterned ground landforms (i.e. polygons, stone circles, mud boils, stripes, etc.) that are seen on both the surface of the Earth and other planetary bodies specifically in periglacial domains. The Canadian High Arctic, particularly Axel Heiberg Island (ᐅ�) and Devon Island (ᐸ) are unique domains that host a variety of patterned ground landforms. Looking at these areas, we want to better understand the mechanisms and evolution of permafrost in the high arctic as well as quantify periglacial patterned ground geomorphology using GIS (i.e. KDE analysis, ArcGIS, CloudCompare). This research gives insight to periglacial landsystems and their significance not only for arctic and planetary analogue science, but also as a tool for hazard analysis and freshwater resources for communities in high arctic regions.

Where "To be, or not to be": 150 Years of Shakespeare in Ottawa by René Duplain & Roxanne Lafleur (Lightning Talk)

This talk will focus on the "Shakespeare in Ottawa: 1867-2017" project, a distinctive example of the application of GIS in the Digital Humanities. As part of this work, we produced an ArcGIS Online Story Map pinpointing the locations, by venue, where productions of Shakespeare plays were held in Ottawa over the span of 150 years since Confederation. Each entry provides an image of the venue, the date range and number of productions held there, as well as open access to more detailed data collected about the productions. The venues range by type, such as theatre, park, educational institution, and more. This endeavour was part of the greater "Shakespeare in Canada: A Cultural Map" project, which was directed by Dr. Irena R. Makaryk at the University of Ottawa, and is "intended to systematically record and subsequently analyse the presence of the Bard and the way in which his works have shaped -- and continue to shape -- Canadian culture."

You CAN Handle the Truth... and Reconciliation! Decolonizing your world with maps by Francine Berish (Lightning Talk)

This presentation will demonstrate the deeply embedded colonial biases in traditional mapping practices. Using indigenous examples, we will venture outside of the traditional western cartographic tradition to enable a deeper understanding of different indigenous worldviews.