Indigenous Guardians Toolkit
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Data Collection & Management Software & Apps

This is a list of some of the data collection apps and data management software being used by Indigenous Guardian programs across Canada. This list of apps and software may be useful as people consider what tools may be a good fit for their Indigenous Guardian programs. This list is not exhaustive, and the descriptions may not represent everything the particular app or software can do.

The list has been compiled by the Indigenous Guardians Technical Support Team (TST), however it does not represent the experiences or opinions of the TST. This is a living document, so if you know of other data collections apps or data management software that could be included, please let us know by emailing info@indigenousguardianstoolkit.ca.

The table below provides more information and links to the following data collection and management software and apps:

Reviewed Software & Apps – At a Glance			
• **ArcGIS** • **ArcGIS Storymaps** • **ArcGIS Survey 123** • **Avenza Maps Pro** • **CoastTracker** • **Community Knowledge Keeper (CKK)** • **Community Lands**	• **CyberTracker** • **Device Magic** • **DropBox** • **EarthRanger** • **EMSA Initiative** • **EpiCollect5 App** • **Fat Map** • **Fulcrum**	• **GeoCaching** • **GeoKeeper** • **Google Drive** • **Google Earth Pro** • **InReach** • **iNaturalist** • **KoBo Tools** • **Mapeo**	• **Microsoft Excel** • **Nunaliit** • **Open Data Kit (ODK)** • **SIKU** • **SMART Conservation** • **Terrastories** • **Trailmark** • **Trailmark Mobile**

Name	Description	Pricing
ArcGIS	ArcGIS allows you to build interactive maps that explain your data and encourage users to explore. You can map your own data and gain perspective by adding the location-based data included in ArcGIS Online. Smart mapping can also guide your data exploration and visualization. You can understand your data in the context of location by using intuitive analysis tools and can reveal relationships, identify prime locations, use optimal routes, and analyze patterns to make predictions.	**Free Trial & Paid Subscription Plans Available**
ArcGIS Storymaps	ArcGIS StoryMaps is a tool to enhance digital storytelling by creating custom maps to. Text, photos, and videos can be added to existing ArcGIS web maps and web scenes to create an interactive narrative that's easy to publish and share.	**Free Public Account & Paid Subscription Plans Available**
ArcGIS Survey 123	ArcGIS Survey123 is a complete, form-centric solution for creating, sharing, and analyzing surveys. It can be used to create smart forms with skip logic, defaults, and support for multiple languages. Collect data via web or mobile devices, even when disconnected from the internet. Analyze results quickly, and upload data securely for further analysis. The ArcGIS Survey123 app works on smart devices, laptops, or desktops as well as in browser.	**Free Trial & Paid Subscription Plans Available**
Avenza Maps Pro	Avenza Maps Pro is a mobile map app that allows you to download maps for offline use on your iOS and Android smartphone or tablet. Avenza Maps Pro equips teams with a reliable offline map app for navigating remote areas without	**Free Basic & Paid Subscription Plans Available**

	internet, network, or satellite connections. You can import specialized, classified, and proprietary georeferenced maps, then add critical information such as GPS tracks, symbols, and photos using in-app data collection tools. You can also share up-to-date maps quickly as situations evolve for better response time and greater safety. Drawing and measuring tools, navigation, customizable attributes, and more can be used to collect map data and easily export to GIS platforms.	
CoastTracker	Specific to Coastal Stewardship Network built from free GPS field data collection software, CyberTracker (see below).	**Free**
Community Knowledge Keeper (CKK)	Community Knowledge Keeper (CKK) is a user-friendly mapping, data management, and integrated consultation tracking and response system. CKK manages the diverse number of records created through research and consultation processes; delivers instant desktop analysis of the potential impacts of industrial development on traditional land use, species habitats, and any other areas of importance to a community; and provides a comprehensive digital community archive for documents, photographs, audio, and video files. CKK is fully customizable and is configured to suit and support the specific needs and consultation processes of each community.	**Subscription Packages Available**
Community Lands	Community Lands is a platform for communities to compile and present, and manage access to, collectively held data and information. It can be used by communities who want to maintain an offline community portal of information including webpages and maps, and make decisions around sharing and publishing that data online. One of the tools within the platform is a Website Manager that allows users with very limited computer literacy and no internet access to build	**Free**

	their own website from scratch. The software also permits full user control of potentially sensitive and powerful community information.	
CyberTracker	CyberTracker is the most efficient free method of GPS field data collection that requires no programming skills, allows you to customize an Application for your own data collection needs, and can be used on a Smartphone or Mobile Device to record any type of observation. CyberTracker enables users with no GIS skills to view and analyse their data in Tables, Maps and Graphs on a Windows PC. Data can be exported in a number file formats for advanced data analyses in other software tools, such as Excel, Esri ArcGIS, Distance Software or R Statistical software. The CyberTracker Icon User Interface was originally designed for trackers who cannot read or write but has enabled significantly faster data collection than text interfaces or written methods and reduced data input errors. Screen designs can combine text and icons for the optimum efficiency. Icons can be designed and customized for the user's specific needs and imported into CyberTracker. The CyberTracker desktop software only supports Android devices at this stage, not iOS devices. The CyberTracker mobile app is supported on both Android and iOS devices.	**Free**
Device Magic	Device Magic is a professional mobile and web app that allows your teams to complete forms and collect data anywhere, anytime. Our smart forms app helps you to quickly retrieve accurate data, flag critical issues, reduce data entry errors, validate answers, add conditional logic, and more. Teams can complete and submit mobile forms anywhere – even offline.	**Free Basic & Paid Subscription Plans Available**

DropBox	Dropbox is a file hosting service that offers cloud storage, file synchronization, personal cloud, and client software.	**2 GB of Free Storage & Paid Subscription Plans Available**
EarthRanger	EarthRanger is a real-time, easy-to-use, online software solution to meet the unique needs of protected area managers, ecologists, and wildlife biologists. Our solution collects, integrates, and displays all historical and real-time data available from a protected area - including wildlife, ranger patrols, spatial data, and observed threats. Data from all sensors, mobile devices, and field reports are viewed collectively in real-time, showing a complete picture of all the activity within a protected area and can function as real-time tracking devices for team members without radios or satellite trackers. EarthRanger can be viewed on a big screen in an operations center, on a tablet, or on a phone. The system can be configured to determine when to receive notifications via WhatsApp, email or text message.	**Free**
EMSA Initiative	The Enhanced Maritime Situational Awareness Initiative is part of the Government of Canada's commitment to provide Indigenous communities with near real-time information on maritime activity in local waters through a user-friendly web platform. The in-development initiative system aims to provide an accessible and near real-time common operating picture for coastal communities and support local and collaborative planning, analysis, and decision-making. The initiative will help communities improve maritime awareness, monitoring, and safety; plan vessel routes; identify sensitive areas; protect the environment; and address	**Free (Project in Development)**

	concerns about the possible impacts that more vessel traffic could cause for marine activities and the local environment.	
EpiCollect5 App	EpiCollect5 can be used to create projects and log data such as pictures, audio, recordings, etc., both online and offline. Data collected from multiple devices is aggregated on the server and can be viewed and downloaded from the EpoCollect5 server in JSON and CSV formats. If your project contains locations, data can be viewed on a map. EpiCollect5 is available for Android phones and tablets, iPhones and iPads that can be used on an unlimited number of devices.	**Free**
Fat Map	Fat Map allows you to create and share custom locations / waypoints, locate yourself on your map at any time, use peak names, roads, footpaths, rivers and other map data to quickly orientate yourself, and record your travel across the land. Features include global 3D outdoor map with real-time information and offline maps; advanced terrain analysis tools including slope, elevation, avalanche and more; and gives updates on current snow depth, fresh snow, and snow forecast directly on your map. You can also download any part of the map and use it without an internet connection.	**Free Basic & Paid Subscription Plan Available**
Fulcrum	Fulcrum can be used for inspections, assessments, environmental observations, field audits, asset tracking, and more - any type of data collection where you would use paper forms. Customizable forms can be created on desktop, laptop, or tablet through the Fulcrum website and deployed to field teams to complete on their mobile devices. Data can be collected offline or online and is automatically geotagged and synced to the cloud for instant access from the office once internet service is available. Offline map layers to the mobile app can be saved, including	**Monthly & Annual Subscription Plans Available**

	routes to specific site areas with driving directions. A live data feed allows for real-time mapping, while data and attachments can also be exported in a variety of standard formats for further analysis. Fulcrum can be used as a standalone location-based data collection platform or integrated with existing services such as GIS and asset management systems.	
GeoCaching	The Geocaching app is a GPS tracking and location marking tool. Geocaching Premium allows you to filter caches by size, type, difficulty, terrain, Favorite points, and found/owned status; save maps for offline use; organize geocaching with Lists; and sort a List of caches by distance, Favorite points, or geocache name.	**Free Basic & Paid Subscription Plans Available**
GeoKeeper	GeoKeeper is an app that supports Indigenous communities conducting Community Based Monitoring programs by providing offline and remote data collection on hand-held devices. Community researchers can collect data in the field with custom survey forms while recording GPS tracks in real time. GeoKeeper has surveys for archaeology, water quality, water quantity, winter conditions, wildlife monitoring, and more. Phone or tablet GPS can be used to create records and device cameras can record photos of what you see. Data collected with GeoKeeper is pushed from handheld devices to a central server that allows administrators to review, filter, and export data as spreadsheets and map files.	**Free**
Google Drive	Google Drive is a file storage and synchronization service that allows users to store files in the cloud (on Google's servers), synchronize files across devices, and share files. Google Drive offers apps with offline capabilities	**15 GB of Free Storage & Paid Subscription Plans Available**

	for Windows and macOS computers, and Android and iOS smartphones and tablets.	
Google Earth Pro	Google Earth Pro is a computer program that provides a series of tools through the desktop application. These tools include software for movie making, advanced printing, and precise measurements. Google Earth Pro is currently available for Windows, Mac OS X 10.8 or later, and Linux. The program can also be downloaded on a smartphone or tablet.	**Free**
InReach	With inReach satellite technology from Garmin and a satellite subscription, you can stay in touch globally. You can send and receive messages, navigate your route, track and share your journey and, if necessary, trigger an SOS to get help from a 24/7 global emergency response coordination centre via the 100% global Iridium® satellite network.	**Monthly & Annual Subscription Plans Available**
iNaturalist	iNaturalist is an online social network of naturalists, citizen scientists, and biologists built on the concept of mapping and sharing observations of biodiversity across the globe. It's also a crowdsourced species identification system *and an* organism occurrence recording tool. You can use it to record your own observations, get help with identifications, collaborate with others to collect information, or access the observational data collected by iNaturalist users. Data generated by the iNaturalist community could be used in science and conservation and is best for recording observations of individual living things, particularly things that can be tied to a species name rather than all ecological phenomena, like rocks, trash, water features, etc.	**Free**

KoBo Tools	KoBoToolbox is a suite of tools for field data collection for use in challenging environments. It can be used to design forms quickly using an intuitive form builder that can be easily shared with colleagues. Data can be collected online and offline on phones, tablets, or any browser. Data can be analyzed and managed as summary reports with graphs and tables. Collected data can be visualized on a map to include a heatmap, clustering, other base layers, etc. Export all your data at any time in formats such as: Excel, CSV, KML, ZIP (for media) and SPSS	**Free**
Mapeo	Mapeo was built with and for earth defenders to easily document environmental and human rights information and to collect data about their land. It can be used by individuals or by teams who want to collaborate and share information, and is particularly good at working in offline and remote environments. It is simple to use, free and accessible, and can be customized with local languages and settings. There is a Mapeo Mobile app, used to gather evidence in the field, to take photographs or record GPS points of significant places; and there is a Mapeo Desktop app, used to organize data collected on mobile or GPS, and to visualize, edit and create reports on which action can be taken which would be hard to do on a mobile. Both tools can work for individual or team projects as you can synchronize data between mobile devices, and from mobile to computer, and computer to computer.	**Free**
Microsoft Excel	Microsoft Excel is a spreadsheet developed by Microsoft for Windows, macOS, Android, and iOS. It features calculation, graphing tools, pivot tables, and a macro programming language called Visual Basic for Applications (VBA).	**Available through Microsoft Office Suite & Custom Plans**

[Nunaliit](#)	Nunaliit allows you to create interactive mapping web sites based on your data and multimedia, and to permit web users to contribute additions and changes where permitted. Nunaliit uses a very flexible document-oriented database to store any text-based attributes or data objects. Documents can have any number of attachments such as zip files, images, videos, office documents, mapping data, etc.	**Free**
[Open Data Kit (ODK)](#)	ODK helps millions of people collect data quickly, accurately, offline, and at scale. Through ODK you can build powerful forms that include photos, GPS locations, skip logic, calculations, external datasets, multiple languages, and more. You can collect data offline using either the mobile app or the web app (forms and submissions are synced when a connection is found) and download your data or connect apps like Excel, Power BI, or R to create live-updating dashboards.	**Free**
[SIKU](#)	SIKU is a mobile app and web platform by and for Inuit. The app provides tools and services such as customizable privacy settings tailored for Indigenous self-determination; streamlined stewardship settings for Guardians and community-driven research projects; terrestrial, marine and ice weather forecasts and alerts for your community; high resolution satellite imagery and map layers including, and much more. SIKU can be used by individuals, organizations, and project management, allowing for easy sharing of information and hard to find resources/documents.	**Free**
[SMART Conservation](#)	The SMART (Spatial Monitoring and Reporting Tool) Approach combines a cutting edge protected area management tool with capacity building and a set of best	**Free**

	practices. The SMART software makes it possible to collect, store, communicate and analyze ranger-collected data on illegal activities, wildlife, patrol routes, and management actions to understand where efforts should focus, and evaluate ranger performance. It comes with a mobile data collection app combined with a powerful analysis and mapping interface designed for, and customizable by, local users.	
Terrastories	Terrastories is an application for communities to map, protect, and share stories about their land. It can be used by individuals or communities who want to connect audio or video content to places on a map. It is designed to be user-friendly and fun to interact with, allowing community members to freely explore without needing any technical background. Terrastories is basically a media content management system built on top of a map, it can be used to map any kind of media content that has a relationship with a place.	**Free**
Trailmark	Trailmark is a web-based software for communities to collect local expertise about the environment, manage historical and current land use and traditional knowledge information, and monitor environmental change – all in one place. Trailmark offers web-based GIS, mobile data collection, a web survey tool and digital file storage in an integrated, easy-to-use platform. Trailmark is intended to arm communities with valid, high quality land-use data accessible at any time through a secure, simple web interface.	**Free Basic & Paid Subscription Plans Available**

Trailmark Mobile	Trailmark Mobile is an all-in-one mobile data collection app for iOS and Android that lets you collect scientific and cultural resource field data, manage other assets, ground-truth interview results, conduct field surveys, and monitor whatever you want. It's easy to learn, easy to deploy, and there's no need for any data transfer work at the back-end. You can create custom data forms in your Trailmark web account and push them out to your smart phone, tablet, or other mobile device. Data collectors can use the simple interface to document land use and observations with rich, real-time data, including voice recordings, photographs, GPS tracks, and more – all in the field. When Mobile users return or are back in cell range or have a Wifi connetion, data can be manually synced with your Trailmark web account. With Trailmark Mobile you can also upload spatial features to your mobile base map (e.g. for ground-truthing) or automatically send your location data to your web account so others know the real-time location of data collectors in the field.	**Free Basic & Paid Subscription Plans Available**