Our Voices, Our Land

A Guide to Community Based Strategies
for Mapping Indigenous Stories

DataCenter
RESEARCH FOR JUSTICE

2201 Broadway #508
Oakland, CA 94612
Tel: +1 (510) 835-4692
datacenter.org

DataCenter's Mission

DataCenter unlocks the power of knowledge for social change. We support grassroots organizing for justice and sustainability through strategic research, training and collaborations. We use research to help move the knowledge and solutions of communities of color and the poor from the margins to the center of decision-making.

Acknowledgements

THANK YOU

For the latest in Research Justice, join us:

YOUTUBE
youtube.com/researchjustice

E-NEWSLETTER
datacenter.org/subscribe

FACEBOOK
facebook.com/researchjustice

DONATE
datacenter.org/give

Free Cultural — APPROVED FOR — Works

Table Of Contents

Introduction

Background

What is This toolkit?

Our Voices, Our Land is intended for First Nations, native, and tribal communities as an introduction to oral history collection and accessible, grassroots mapping concepts and strategies for non-mapping experts. The toolkit builds on DataCenter's theory of Research Justice to advance cultural and political sovereignty for communities that continue to be marginalized by mainstream policies and practices.

This toolkit encourages communities to recognize their own expertise and to develop their own analysis of the issues that impact them. It can be used as a resource to develop strategies to address the needs of communities fighting for cultural sovereignty. This toolkit facilitates relationship and capacity building and we hope that it will improve accessibility to technology for communities working to advance their cultural and community interests.

We recognize that many communities have their own traditions of story telling that go back through the generations. This toolkit is meant to support and strengthen those traditions and can be a way to visually document community narratives for whatever goals you might have including the preservation of traditional lands, the retention of cultural knowledge related to language and ceremony, and the transfer of knowledge from one generation to the next. We hope that this toolkit will help support indigenous-led, community-driven responses to the environmental and social justice needs of native communities.

What Will This Toolkit Help You Accomplish?

This toolkit will help you build the capacity of your community as well as individuals who are part of that community. As you collect the stories and plot their locations on a map you are reconnecting with knowledge that may have been hidden or lost.

This is a great moment for knowledge to be passed down from elders to youth as well as a medium through which to preserve knowledge for use by future generations. Going through the process laid out in this toolkit will help you not only clarify the vision of change that you want to see for your community, but also help you more effectively communicate that vision.

Research Justice is a strategic framework that seeks to transform structural inequities in research. It centralizes community voices and leadership in an effort to facilitate genuine, lasting social change.

Why Storytelling? Why Mapping?

Our stories represent our history and our present. They let us know where we have been, where we are and where we are headed. They are also the representation of who we are as people and communities. Our stories tell our realities and we use stories to connect more with each other, across generations. Our stories can also inform others about our struggles for land, cultural survival and resources so the decisions that are being made on a policy level support our communities' self determination.

Many times our stories are connected to geographical location. We might talk about the place where we grew up, or the spot where an important event occurred. Geography is especially important when defending our cultural resources. These may be the sites where we practice ceremony or where our ancestors are buried. We want these places to be remembered and passed down through the generations.

We may also want to let others know about the location of our sacred sites so they can work with us to defend them against intrusion or destruction. Maps are not just a point on a piece of paper, but a physical representation of information we know about that location. They tell a story and can be helpful in explaining and issue and documenting changes. They can help us see the links between places, events, facts and communities. For centuries, communities have used map-making to develop a sense of place and identity and to enhance cultural knowledge.

Are Storytelling and Map Making Research?

Yes! We can think of research as the process of asking questions, collecting information to attempt to answer those questions and then developing findings that depict this new evidence.

Collecting stories and mapping what we hear in those stories is an approach that draws on our own knowledge, that of our elders and youth and enables us to create visual and non-visual data to explore the problems, questions and opportunities that face our communities. In the process of both telling and listening to stories as well as mapmaking, we create a collective analysis and draw on our own expertise to create solutions to the problems that we face.

**Our Voices
Our Land**

What is Research Justice?

The concept of Research Justice begins with a single question: Who defines and controls knowledge production? Politically dominant institutions are not only dominant in policymaking, they are also dominant in the knowledge production that informs policymaking.

There is an inequity in the way research is practiced in the world. Community knowledge and people's direct experiences with day-to-day injustices get dismissed by decision makers. Yet, knowledge produced by mainstream institutions through scientific means is often seen as legitimate, regardless of whether it reflects the community's truths and realities.

As a result, traditionally marginalized groups — such as poor communities of color and indigenous communities — experience challenges when confronting power structures to achieve institutional change. Their voices are silenced and their access to mainstream knowledge is limited, often leaving people disempowered and unable to recognize their own expertise in the problems facing their community. At DataCenter, we call this 'research oppression.'

Here are just some of the many ways we experience and witness this reality which we refer to as 'research oppression' in marginalized communities.

> ✔ Little to no access to information from academic and governmental institutions because of language limitations, cost, and privatization of information;
>
> ✔ Little to no control over the means of their own knowledge production;
>
> ✔ Communities portrayed or represented negatively through biased lens;
>
> ✔ Community knowledge is not recognized as a legitimate source of information. Community voices are dismissed as "anecdotal" or "biased;"

To fully harness the power of Research Justice, we must heal from internalized 'research oppression' — by fully reconciling its consequences on our communities, our families, and ourselves. When people are unable to recognize their own expertise and begin to internalize dominant messages, they feel disempowered and unable to challenge power.

Empowering communities to build and recognize their own expertise is an essential part of challenging research oppression. Research Justice is achieved when communities reclaim and access all forms of knowledge to affect change. The balance of power is restored between community voices and those of institutions.

Why Engage in Community-driven Research?

It's Strategic. Building research capacity leads to stronger organizing capacity. Community-driven research allows us to engage with our communities about the problems people face and move them to action. Building solid campaigns for change requires research that leads to effective strategy which includes our community's investment in fighting for solutions.

It's Transformative. To liberate ourselves we must educate ourselves. When learning and discovering is a collective process, people gather stories and see the commonalities of their conditions. Collective learning validates their experiences, affirms how much they already know, and lays a foundation for critical reflection. When we learn first-hand about the roots of our oppression, we enter a new phase of consciousness towards personal and political transformation.

It's Revolutionary. In order for research to genuinely build a sustainable social justice movement, it must be practiced from the ground up. It must be practiced in communities. Creating systems of knowledge production that are autonomous from the existing power structures is a way of exercising self-determination.

Case Study

Research Justice in Action toward defending traditional lands and culture for the Winnemem Wintu.

The Winnemem Wintu, meaning Middle Water People, have lived along the McCloud River for more than 6,000 years in an area near Mt. Shasta and Redding, CA. While at one time numbering 14,000 individuals, the tribe currently has about 150 members, a result of historical and continued colonization and oppression of native people in North America. The tribe has been denied federal recognition since the mid-1980s, a reality that limits the tribe and its members from access to adequate infrastructure for their village, healthcare, educational opportunities and political power to advocate for the protection of their land and culture.

A Threat to Cultural Survival

The completion of the Shasta Dam in 1945, which created the largest reservoir in the US, permanently submerged more than 90 percent of the Winnemem Wintu's original territory. While the Winnemem have never been compensated by the US government, the tribe has continued to carry on their traditions and survive. Legislation has recently been introduced by Republican Jim Costa of Fresno to raise

Shasta Dam, Shasta Lake, CA

the Shasta Dam by 18.5 feet increasing water storage capacity in the reservoir by 300,000 acre feet. While the proposal to raise the dam has existed for a decade, the recent drought and the ongoing effects of climate change in California have brought the project to the forefront.

While the project will largely be financed by tax payer dollars, the increased water storage will primarily benefit agribusiness in the San Joaquin Valley. Westlands Irrigation District, a private water distributor that provides the water for over 600,000 acres of farmland in western Fresno and Kings counties has already spent more than $35 million to buy 3,000 acres around the Shasta Reservoir in anticipation of the dam raise.

For the Winnemem, the raising of the dam means that 36 sacred sites will be partially or fully submerged and 15 others will be at risk of desecration from increased access by people using the reservoir as a recreation area. The loss of access to sacred sites prevents the Winnemem from engaging in spiritual, social and medicinal practices that they have maintained for thousands of years and having the ability to pass on this knowledge to young people. This threatens the Winnemem's connection to the land, access to resources and economic and cultural survival as a people.

Research

In 2008, DataCenter partnered with the Winnemem to collect oral histories related to their sacred sites. Mike Preston, an emerging leader of the tribe and DataCenter fellow worked to coordinate the project. More than a dozen members of the tribe across generations participated in the interview process. Mike conducted data analysis of the interviews using NVIVO, a qualitative analysis software platform. The interviews collected information about why the sites are sacred as well as documented their importance to the tribe based on three different main themes: ceremony, healing and spirituality.

Through this process, the tribe decided to incorporate a second methodology, mapping, to provide material evidence for what they were finding through the interviews. The tribe invited Eli Moore of Pacific institute to join DataCenter in facilitating 2 day long workshops in preparation for the mapping work.

"A sacred site is a place that has a healing power of its own, knowledge of its own that was given to it by the Creator to help all the beings around it, whether it be a little ant or the people who come and pray there, or the (evil kemayo baritten). It is a place that originated way before anything else existed here. And those sacred places were known to the Winnemem through the spiritual world, and so when we go to those places it helps to settle your heart. It helps to help you have the knowledge about what to do next, what else."
—Anonymous interviewee, Sacred Spaces Documentation Project

The first workshop was devoted to setting goals and guidelines for the partnership between the Winnemem Wintu and its mapping partners, grounded in the value of partnership centered on the goals and needs of the tribe, and establishing accountability to the Winnemem Wintu. During the first day, the partners built a project agreement that detailed the roles, expectations, and decision-

Mike Preston (middle) learns how to use GPS with fellow members of the Winnemem Wintu tribe.

making mechanisms for the collaboration. The second workshop focused on technical skills training of using GPS units, creating map using Google Earth, and storing data securely. Members of the tribe, in particular three youth members, used the GPS units and new skills to map dozens of sacred sites over the following months. The goal of the workshop was not to map all the sites on that day, but to equip the tribe with the tools and experience necessary to do the mapping independently at a later time, thus respecting the sanctity of the sites.

During the mapping process it also became clear that the Winnemem needed a protocol to protect this sensitive information. On one hand, the maps and spatial

locations of the sacred sites need to be made public to some degree so that they can be used as evidence in the discussion with the Forest Service and other government agencies. However, a long history of defacement and disrespect of sacred sites by non-Winnemem require that the tribe be protective of the data. The tribe is still in the process of deciding who will have access to what data and how the data will be preserved over the long-term. A draft data security protocol was developed to create some guidelines.

Members of the Winnemem Wintu, Audrey Ward (right) and her brother (left) plot the GPS coordinates of a sacred site they hope to protect.

Organizing

In the last 10 years, the Winnemem Wintu have escalated their fight for the right to their traditional lands and their culture. In May of 2004, the Winnemem held a H'up Chonas or war dance at the dam, raising the visibility of their fight. The Winnemem saw this as a promise to resist against the dam raise and the forces behind it. In 2005, they released a report with the Delta Public Advisory Committee declaring the project

Chief Caleen Sisk continues to lead the fight to preserve the Winnemem's land and culture.

to be counter to the principles of environmental justice. The Winnemem have collaborated with environmental activists and staged direct action protests to protect sacred sites used for coming of age ceremonies from intervention by recreationalists and held many public actions to oppose the dam raise. The Winnemem resistance has created a significant block to what could have been a foregone conclusion of raising the Shasta Dam. The Winnemem are continuing to map their lands in an effort to gather additional data that supports their cultural sovereignty.

For more information, visit winnememwintu.us.

Getting Started

As you embark on this documentation and mapping project it is important to have a plan. This will help you create a project that is strategic and that supports your goals, whether they are related to campaign goals, organizational capacity building or individual leadership development.

DataCenter breaks down research into four different stages:

1. Goal Setting
2. Planning
3. Execution
4. Outcomes

Within each stage, there are multiple steps to approach a story-telling and mapping project. Having a well thought out project that identifies what you hope to accomplish will ensure a streamlined process.

You will notice that we use the four directions as an icon guide throughout the toolkit. We chose this imagery not only as a way to think about our process "on the map" but also as a way to provide a common symbology that is meaningful for many native cultures. When using this toolkit in your communities feel free to use imagery and icons that are meaningful to you. In each section we will note what stage of research we are working on to provide additional clarity.

WEST NORTH

Part 3: Mapping for Advocacy and Self-determination (Execution and Outcomes)

Part 4: Reflection and Thanks (Outcomes)

Part 2: Gathering Stories and Honoring Storytellers (Execution)

Part 1: Setting Intentions & Picking Paths (Goal Setting & Planning)

SOUTH EAST
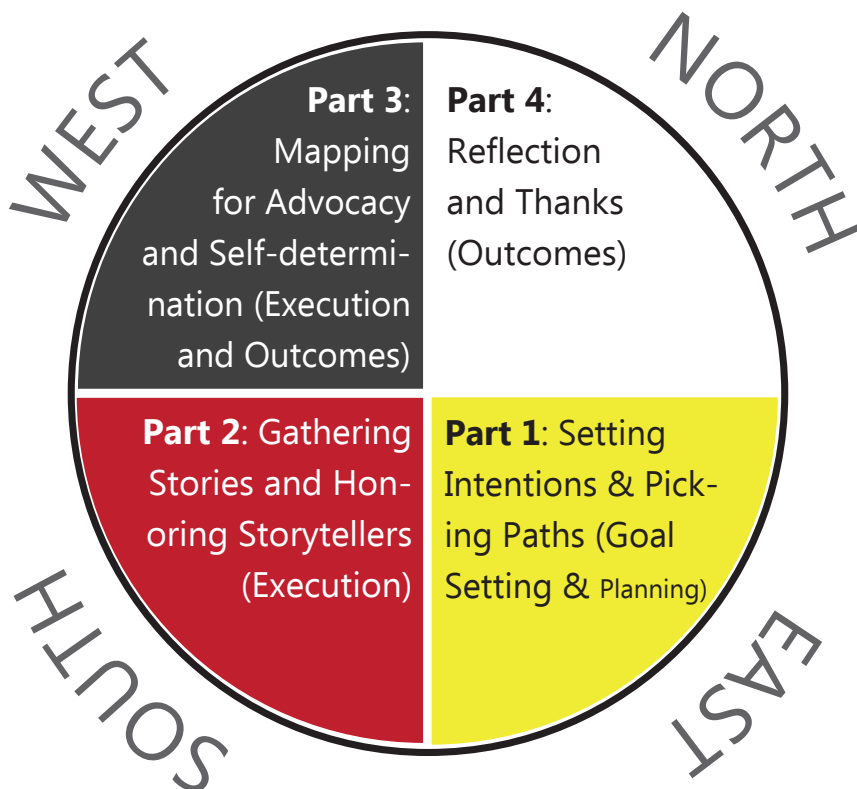
Some Notes on Healing from Trauma

Indigenous people around the world have for hundreds of years have experienced physical, spiritual and cultural genocide at the hands of European and American colonial powers. Research has unfortunately played a role in this legacy and has served not only to objectify and dehumanize native people, but has informed policies and practices that have continued to harm indigenous communities for centuries. Doing research, especially when your community has been hurt by research in the past can bring up pain and trauma. Have a space to hold that trauma and do collective healing that allows you to become stronger and reclaim research for community needs and agenda.

Dr. Maria Yellow Horse Braveheart, PhD (Hunkpapa/Oglala Lakota) conceptualized historical or intergenerational trauma in the 1980's as a way of understanding the effects of systemic oppression in native communities. Historical trauma is cumulative emotional and psychological wounding over lifespans and across generations stemming from massive group trauma.

Dr. Braveheart shares with us an intervention model to address historical trauma.

- Education increases awareness of trauma,

- Sharing the effects of trauma provides relief,

- Grief resolution through collective mourning/ healing creates positive group identity and commitment to community.

We hope that this toolkit and the practice of Research Justice can provide and opportunity to confront historical trauma and transcend it in some way.
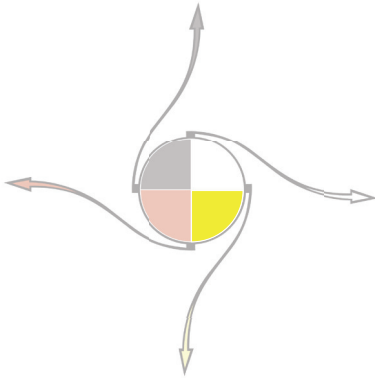
Goal Setting and Planning

In this session, our goal is to tackle the research planning process in more depth.

Preparing to Undertake a Storytelling and Mapping Project

> ❤ What campaigns, organizational or community goals will the project support?

> ❤ What is your primary question – the question that will guide all the inquiries?

Storytelling and mapping projects can support many goals. You might want to bring people together and build collective power. You might want to generate new information about an issue in your community and identify a way to demonstrate that information to decision makers, the public or fellow community members. Break down what your campaign or project is, who are the targets and what information is needed. List your goals and reasons for both interviewing and mapping. Think about what you want to get out of this process (outcomes). Be sure to document your goals so you can refer to them throughout the project and during reflection when you are complete.

For example, in the Winnemem Wintu case study, the Winnemem wanted to use the stories and map of their sacred sites to be able to demonstrate to decision makers (representatives, congress people, US Forest Service officials, etc) that the raising of the Shasta Dam will flood additional sacred sites and cause the Winnemem community cultural and spiritual harm.

Identify Your Audience and Your Data

> ❤ What information do you already have?
> ❤ What information are you looking for?
> ❤ Who do you want to directly or indirectly move on the issue?
> ❤ How do you want the information to move this audience?

Consider researching on the Internet, at the public library or reviewing public records. Knowing what information is already public knowledge is helpful in figuring out what new information or viewpoints you need. List key points your think community members have to share that would add to or sharpen the information you have already obtained.

**Our Voices
Our Land**

Depending on what your research questions are, here are a few ideas on where to start identifying data **sources**:

California Historical Resources Information System (or a similar system in other states)
- ✔ bit.ly/ca-historical-resources

National Archives Library Information Center
- ✔ archives.gov/research/alic

Bureau of Land Management Land Records Info
- ✔ bit.ly/land-records

You will want to target different audiences to achieve different goals. For instance, some research methods will engage community members and move them to action, while others will put pressure of decision makers. You must identify what information will most effectively advance your goals and what research questions will lead you to that information.

Assess Your Group's Capacity

Before starting a research project, take an inventory of the resources you have available to you to complete the project including time, space, capacity and funds. Ask yourself the following questions to ensure you have what it takes to start a project.

- ✔ Do you have the people power to carry out the work?
- ✔ Do you have the space to hold workshops/meetings, funding for food, equipment for mapping and interviews, access to computers?
- ✔ Do you have a plan to keep your data safe?

Who Will Be on the Research Team?

When preparing to undertake a participatory research project, it's important to think about who needs to be involved as well as who the project is accountable to.

- ✔ Are you planning to include elders and youth?
- ✔ Do you need outside support? Do you need someone to train you in how to interview or to support your mapping process? Do you need someone to help with data analysis?

Create a Timeline

Is there an important decision or event that is coming up that you want to

**Our Voices
Our Land**

impact using your research findings? You may also want to look for calendar hooks – certain events, holidays or occasions that are relevant to the issue you are working on. Your timeline will determine the length of your projects and your methodology.

Identify Your Sources

Who holds the information and how will you identify them? When determining who to interview, ask yourself who is being impacted by your research. Further criteria for selecting interviewees might be organizational practices, location, first-hand experience, and/or diversity of experience.

Source: The location or container of the information.

Consider how much time is available to do the interviewing and transcribing (Keep in mind that it takes experienced transcribers five to six hours to do just one hour of recording). It is always good to get as many sides of the story as possible, but we suggest you start small and expand the project if time allows – 10-15 interviews is recommended. This toolkit presents a framework for a "mixed methods" project, that is story-telling and mapping. It is rare that there will only be one source of information and in fact, many times the combination of qualitative and quantitative information is stronger.

Do You Have Access to the Tools or Equipment That You Need for the Project?

Please see Part 2 (page 18-36) for a list of equipment you will potentially need to conduct interviews.

See Part 3 (pages 37-56) for a list of equipment you might need for mapping.

Tool: The instrument that you use to gather the information

What Will Success Look Like for Your Project?

Identify some ways to measure how you accomplished your goals. These could be quantitative such as how many people you engaged in the project, how many stories you collected or how many points your were able to plot on a map. Measures could also be more qualitative based on what outcomes you are seeking. So for instance, young people might report that they feel more connected to their history and culture after completing the project.

For more terminology tips, check the Terminology Glossary on pages 61-62.

**Our Voices
Our Land**

👥 Activity

🕐 35 minutes

✎ Materials

- ☐ Flip Chart Paper
- ☐ Stepping Stone cards
- ☐ Markers
- ☐ Tape

Research Planning Exercise: Stepping Stones

🏆 Goals of the Exercise
- ✔ Understand the core steps of research and practice designing them strategically
- ✔ Explore more deeply how to approach research project planning
- ✔ Practice creating a mock survey project plan

📑 Agenda
1. Stepping Stones Exercise: 35 minutes

⚙ Set up
- ✔ Print out 2-3 sets of stepping stones cards (see Appendix pages 63-76)
- ✔ Prepare tape for each group to put up Stepping Stone cards

Facilitator Instructions:

A research project can feel like a daunting task but with proper planning, it can be done well by even the smallest community group. In this session, our goal is to tackle the research planning process in more depth.

1. Stepping Stones Exercise (20 min)

Divide participants into groups of three. Distribute a set of Stepping Stone cards to each group. Instruct them to post the cards in the best planning sequence. Encourage participants to work together to determine their answers.

[card icon] = 'Stepping Stone' task card (see Appendix pages 63-76 for Stepping Stone cards)

A wall in the room ⋯⋮

**Our Voices
Our Land**

👥 Activity

Bring the group back together and compare the different plans as a group. Engage the group in the following discussion.

💬
- Why did you order the cards in the way you did? (Particularly compare the responses of groups.)

- How does that choice impact the rest of the process, or outcomes?

- What was difficult about this process? What made the process work smoothly?

- What steps need further explanation?

- Which steps might need to be reordered? Which might need to be removed?

- Did your group achieve consensus easily or not?

Summarize the discussion. Ensure that participants understand that there isn't necessarily one way to do it but that it is important to think about why they order things in the way they did. Pass out the **Starting Your Research Project worksheet** (pg. 15) that breaks down a basic order of planning a research project and the categories each stage falls under (i.e. plan, develop & conduct, analyze, distribute).

Please see a complete set of Stepping Stones cards in the Appendix (pages 63-76)

Starting Your Research Project Worksheet

Research planning is an essential piece of carrying out a research project that will help an organization or community group effectively work towards its long-term vision for social change. The following is intended to help you think about your organization's programs and what research project could be shaped to help your organization utilize participatory research as a method for building towards your organizational goals.

Part 1. The Big Picture

What is the problem? What are the issues going on in the community that we want to address? Examples: A development project threatens traditional land.	
What campaigns or organizational goals will the research support? Or what is the headline you want to see? Examples: Share cultural knowledge across generations; Preserve traditional language; Protect sacred sites from desecration.	
What kinds of impact do you want to have? Examples: What are the concrete changes that you want to see in your community?	
What information are you looking for? Examples: Location of resources, places to find food.	
Who is/are the audience(s) for this information? Examples: Who are you trying to move with the information so that you can achieve your goals? Media that will inform the general public that will put pressure on a government official? Your community members that need to be made aware of the issue so that they will organize? A campaign target like a corporate head?	

Part 2. Getting your 'Methodology' Down!

What's your **Source**(s) - the information you are looking for? Examples: It can be newspaper article that describes your issue, it can live in your community through their day to day experiences of an oppression, or in public records compiled by government entities that describe your community.	
What **Tool**(s) will you use to extract your source? Examples: An interview or survey can pull experiences of your community; literature reviews will pull out existing writings, search an online database or submit a Freedom of Information Act (FOIA).	
What is your **Method** – the plan for using your tool(s) to get your source(s). Examples: You can conduct a face-to-face survey with 500 residents, search through the EPA, census and HUD databases, go to the public record offices in your city.	
By when, should this happen? Examples: When do need the research to be complete, but include benchmarks along the way on when parts of the research can be completed; consider press moments or political dates when the research will be more powerful.	
What role can members/community play in the research process? Examples: Are there places in the process member input or involvement can happen – guiding the research, participating in the analysis, creating tools, doing outreach.	
What are your materials internally? Examples: Does the information need to be formatted, summarized, translated into other languages or into user friendly language. This is throughout the research process not just the end.	
What are your materials externally? Examples: A shiny report, a summary of findings, a fact sheet. Consider your audience and what they will listen to. A fancy report for a policy maker versus a user friendly comic book for a community member.	
Who will have access to the data during and after the project? Examples: The data you are collecting may be sensitive. Who from your community can access the data? Will any outside people have access?	

Part 3. Check your Resources

Who will coordinate the project? Examples: Oversee the projects, check the timeline, guide the process including making necessary changes, liaison if multiple people or organizations are involved?	
Who will collect the information? Examples: Volunteers, members, ally organizations, students? How much staff time will it take?	
Will you need to do trainings to conduct research? Examples: Who will conduct the training? How long will the training be? Who will design it? How many does someone need to go through to be able to conduct the research?	
Who will develop the materials to be distributed to your audiences? Examples: Plan, write, review, edit, design, print, distribute? Will the materials need to be translated?	
Will you involve any allies or outside organizations? Examples: Who? What roles will they play?	
How's the money looking? Examples: Do you have funds to pay for data entry, printing, and design? Do you need to do fundraising?	

Part 4. Timeline

Steps of the projects: Examples: gather data, create database, data entry, create user friendly materials, release report, etc.	When will it be done? *Fill in date(s)*
a.)	
b.)	
c.)	
d.)	
e.)	

This section provides an overview of the interview process and includes tips for before and during the interview. Like the rest of this guide, the methods described below are rooted in practices of participatory research. This means the research is done by and for the people in the community or tribe, for their own purposes, and to support their own goals. When you complete this section, you will understand what questions you need to ask and you will have generated an interview guide.

Special thanks to the Storytelling and Organizing Project, and Creative Interventions for guidance on interview best practices.

Please see the **Terminology Glossary** (pages 61-62 in the Appendix for a list of terms commonly associated with interviews as a methodology).

Creating an Interview Guide

Creating an interview guide helps prepare us to listen to and honor our storytellers. It is a set of questions or themes that you plan to cover during the interview. It will serve as your guide as you move through the conversation.

Just as every storyteller is unique, every interview will be different. Nevertheless, you have some important questions that you want to ask your storytellers. Having an interview guide will help you cover what you intend to. And, if your project has multiple interviewers, having a collaboratively-drafted interview guide will give each interviewer and storyteller the opportunity to discuss the same important topics.

Your interview guide can be simple or complex: a brief checklist of topics or a series of detailed questions written out word for word. No matter which path you choose, the tips that follow may be a good place to start.

Tips for Creating an Interview Guide:
  • Asking open-ended questions invites your storyteller to provide rich, detailed responses. This means wording questions so that they cannot be answered with a simple "yes" or "no."

  • The best interviews flow smoothly from one questions to the next. Help your storyteller feel comfortable by grouping questions according to theme and anticipating transitions between questions.

  • Consider beginning with questions that are easier to answer. You can slowly move toward more sensitive topics as your storyteller begins to feel more comfortable.

  • Prioritize your questions and keep your list short. It takes strength to

Our Voices
Our Land

share stories and listen well, and your storyteller may get fatigued if they are asked too many questions.

• Be aware that you will likely use prompting questions, follow-up questions that encourage your storyteller to elaborate or clarify their response. You may want to brainstorm a list of specific prompts to follow a broad question, or you can refer to the list of general prompts provided in this guide (see page 21).

• Practice asking the questions ahead of time and modify them as needed to help ensure the interview will elicit the stories and knowledge you hope it will.

Guided Discussion, "We Are Life-Long Listeners"

This guided group discussion encourages participants to remember a time when a loved one told them a powerful story. This may have been a personal narrative, a tale about family origins, a piece of tribal history, or some other type of story. Ask participants to turn to a partner and discuss the following questions:

• Can you remember a time when someone told you a story that meant a lot to them? Who was that person and what was their story about?

• After listening to the story, what did you do with the knowledge you had been given?

• Did you repeat that story or keep it to yourself? How did you make sure you would remember the story?

• How did you know what to do with that story?

Sharing examples of such moments reminds us that we are life-long listeners who have practiced listening to stories and honoring storytellers all our lives. We will bring these skills to bear as we determine what questions to include in our interview guide, approach potential interviewees, record their stories, and interpret their words.

Asking the Right Questions
By crafting a one-of-a-kind interview guide, you can ask the questions that feel right for your project and ask them in a way that feels right for your community. Your questions should be based on your goals for the project and your research questions. Many people with experience conducting interviews and oral histories have found that certain types of questions can make storytellers less likely to respond with their genuine thoughts and feelings. Three types of questions to avoid are listed below.

Questions to Avoid
✖ **Close-ended questions** are questions that can be answered with a

Our Voices
Our Land

simple "yes" or "no" response and may discourage your storyteller from elaborating and speaking from the heart.

- Example: "Has ceremony associated with sacred sites affected your life?"

- Try instead: "How has ceremony associated with sacred sites affected your life?"

✖ **Leading questions** are questions that "lead" your storytellers to give certain types of responses instead of sharing their genuine thoughts and experiences.

- Example: "Don't you agree that ___ is the most sacred site we have?"

- Try instead: "What makes a certain site sacred for you?"

✖ Questions with **loaded words** should also be avoided. Loaded words are those that carry definite negative or positive connotations. Using them in your questions can send a signal to your storyteller that you want them to respond in a certain way.

- Example: "How poorly is the sacred site protected?"

- Try instead: "How well do you think sacred site is protected?"

💡 **Facilitator tip**:
Participants can work in pairs, or the facilitator can go through each question and take responses from the full group.

Group Activity: Practicing Open-Ended Questions

In this activity, participants will practice turning close-ended questions into open-ended ones. Remember, a question is open-ended if it cannot be answered with a simple "yes" or "no" response.

Close-Ended Question	Open-Ended Question
"Did you have a happy childhood?"	Example: "What are some memorable experiences from your childhood?"
"Is it important to protect sacred sites?"	
"Is there one site that is most meaningful to you?"	
"Is it important for the ceremonies to happen at a specific time of year?"	

💡 **Facilitator tip**:
Insert additional examples here

Our Voices
Our Land

Interview Materials:

- ☐ A copy of your interview guide
- ☐ DataCenter's Tips for Interviewers (see page 28)
- ☐ Recording equipment (including extra batteries if necessary)
- ☐ Pen and notebook
- ☐ Consent form, if applicable (see page 59-60)
- ☐ Informational materials about your project to share
- ☐ Sign-up sheet if the storyteller wants to be contacted later to get more involved

Listening Well: Using Prompting Questions

Again, prompting questions are follow-up questions that you can use to encourage your storyteller to elaborate, be specific, and clarify what they mean. Using such questions is a great way to show your storyteller that you are being an active listener and are interested in truly understanding their thoughts and stories.

You may plan some prompts ahead of time to include in your interview guide, and you might also use other prompts spontaneously during the interview. In the example below, see how the interviewer asked three prompting questions to help the storyteller elaborate on her original answer.

Role-Play Script : Practice Using Prompting Questions

Ask two participants to role play the following dialogue, or act the part of a shy storyteller and improvise a similar scenario with a volunteer interviewer.

Question:	Why was participating in that ceremony meaningful to you?
Storyteller:	*It made me feel good.*
Prompt 1:	What about it made you feel especially good?
Storyteller:	*I was able to be there with my family.*
Prompt 2:	What family members were there?
Storyteller:	*My grandkids.*
Prompt 3:	Can you tell me more about how it felt to be there with your grandkids?
Storyteller:	*It felt important for me to be there with my granddaughter at my side because I remember participating in the same ceremony when I was her age. It felt good to share that with her... maybe she will share it with her grandkids when she is old.*

More Examples of Prompting Questions:

- Could you please tell me more about . . .?
- What makes you feel that way?
- I'm not quite sure I understood ... could you tell me about that some more?
- Could you tell me more about your thinking on that?
- What stands out in your mind about that?
- Can you give me an example of . . .?
- I'm not certain what you mean by . . . can you give me some examples?
- This is what I think I heard . . . Did I understand you correctly?

Our Voices
Our Land

Respecting Our Storytellers
Consent and Data Security

One of the most important and challenging tasks we face is identifying and evaluating risks of harm associated with participation in our research. Often, the possible harms might be less predictable, but this is critical for us to do as we embark on our work. The types of harms might be economic, legal, social or emotional. In the past, some research has led to risk of physical harm as well. All of these things we must do our best to address and reduce. And, if and when we cannot reduce the harm, we must consider changing course. It is CRITICAL that each person involved in collecting stories does so in such a way as to protect those who have shared their lives and experiences.

Our Codes	What We Mean
Respect of privacy	We do not collect information without our participant's knowledge.
Respect of confidentiality	We protect the identity of anyone who participates, and the information they share.
Informed consent	Each and every person must decide, with as much information as we can provide, if they would like to participate in the research. They are in control, and can stop or withdraw from the project at any time.
Promoting benefits & minimizing risk	Benefits may be long or short-term, and we do all that we can to prevent or reduce risks (emotional, physical, economic, social, legal or otherwise).
Justice	Fight exploitation. This is at the heart of our struggle, and we must consider and challenge how we may unintentionally (or intentionally) harm those around us.
Common sense!	Remember to trust common sense while conducting research that always has the absolute best interest at heart of the participants.

What is Consent and Why is it Important?
Consent is important on a number of levels. Most times, we want to know when, why and how we are giving someone information about ourselves. Additionally, we want to be able to tell our own stories. Many of our communities have experienced the misuse and appropriation of their stories. We want to make sure that we are telling our own stories intentionally and using them to create stronger more powerful community. Here are some potential consent options you could use to secure consent from story tellers.

Option A: Have a consent form available for participants to sign before being interviewed

Option B: The participant can give verbal consent

Prior to gathering a story, let the story teller know what they can expect:
- Inform the storyteller about what kind of information they will be asked about,

- Inform the storyteller that their responses are confidential and that they can decide whether or not to share any identifying information

- Let the storyteller know that their participation is voluntary and that they can stop at any time or skip any questions they don't wish to answer.

A sample consent form is available in the Appendix, pages 59-60.

Anticipating Questions Storytellers May Have for You
Be sure to let storytellers know the following:
- Describe your project, why are you collecting stories?

- What will happen with the stories?

- Will the stories become public?

- What measures have you put in place to maintain confidentiality if necessary?

- What will the stories look like? What is the final product?

Considering Data Security

Our stories and our maps can be sensitive, especially considering a context where the information and land of indigenous people around the world has been compromised or stolen for the material gain of those in power. The location of sacred sites in particular may be especially sensitive if we are trying to protect them from desecration or destruction.

Creating a Data Security Plan: Questions to Consider

- What is the purpose of this plan?

- What information is covered under this plan?

- What data are deemed confidential?

- Will this confidentiality be rated on a sensitivity scale? If so, how?

- Who will have access to this data?

- Will different project partners have different levels of access to data sets?

- What are specific procedures for protecting the confidentiality of information?

- How will confidential data be stored?

- If you are using digital tools, what are their security strengths and weaknesses (for instance, how secure are google tools or survey monkey?)

- Physical data (posters, etc.) versus digital data (contained in files in mobile devices, servers, etc.)

- What are the specific procedures for monitoring the ongoing implementation of this plan?

- Will there be penalties for project participants who don't follow the agreement?

- Will there be a person designated who may impose additional information security requirements beyond those set forth in this policy?

- Will there be an Advisory Board to help with implementation and monitoring?

- What is the process for sharing data with other individuals, groups, or organizations?

- Will there be an expiration date?

- Will there be a timeline for revisiting the plan? If you make revisions, be sure to record what you changed and the time and date of the change.

Please see Data Security Resource Packet at datacenter.org/data-security

Our Voices
Our Land

Listening to Stories
DataCenter's Tips for Interviewers

Introduction

The process of listing to and gathering a story can build individual skills, strengthen community ties and uncover forgotten or lost knowledge. The following section will help you get the most from your story gathering experience through tips to stay intentional, prepared and focused.

Leading up to the Interview

• Find a quiet, comfortable place to meet. This may be a space that the story-teller identifies. Make sure there is minimal background noise (cars, construction equipment, running water, etc)

• Test your recording equipment to make sure the sound is clear.

• Review the interview questions to make sure they make sense and you are comfortable asking for this information.

During the Interviews

• Begin collecting the story with warm-up questions or small talk to help put the person at ease. Don't make noise when the story teller is talking. Try not to say "uh huh," or interrupt when something interesting or important is being said. Instead, use visual cues like nodding your head.

• Use your interview guide as a roadmap for your conversation with your storyteller. Listening well and maintaining a positive rapport between the two of you is more important than strictly following the interview guide. As the interview progresses, be observant and sensitive about how your storyteller is responding to your questions: How is the conversation making them feel? What can you do to make them feel more supported and respected?

• Storytellers are as unique as the stories they tell, and each will interpret your questions slightly differently. They may elaborate extensively on some topics and have very little to say about others. This is to be expected -- if a certain question does not seem to resonate with your storyteller and follow-up prompting questions do not seem to work, it is okay to move on. If you come to a question that has already been answered in response to a previous questions, you do not need to ask it again, but you may want to check to see if the storyteller has anything else to add on the point.

• Look at the story-teller's eyes (not your papers or recorder). Stay interested and engaged. If you need to look at your notes with more than brief

**Our Voices
Our Land**

glances, find a good time to stop and take a little time to get back on track.

• Take notes. Write down any questions or stories you might want to return to later. You can always go back later and ask.

• Keep the tape recorder running, even if you think the storyteller is moving toward topics that are not immediately relevant to the questions you are asking. Try to keep them on subject, but you may find that it is better to take a little longer with the interview than miss a good story that may turn out to be very relevant after all. Before you turn off your recorder, ask the story teller if there is anything else that they want to talk about. Record 2 minutes of "room tone," – the room's ambient sound in case you decide to use the recording for something later.

Conducting Pilot Interviews

Conducting a few pilot, or rehearsal interviews may be helpful because you can:

• Practice going through the entire interview guide, start to finish.

• Reflect on the order, wording, and delivery of the questions.

• Make changes to the interview guide before talking with more Storytellers.

You can collect feedback from the pilot interviews in order to make any necessary changes using the form on page 27.

 Facilitator tip:
Lead a group discussion to help project participants brainstorm a list of additional tips. Record them on a large piece of butcher paper and include them in the final interview guide.

Group Activity: Creating Custom Tips for Gathering Stories in Our Community

Are there other ways of interacting with storytellers that will be particularly important for your project in your community? How else do you show storytellers honor and respect in your community?

• _____

• _____

• _____

• _____

• _____

Sample Feedback form for Pilot Interviews

For Interviewer to Complete

Date of Pilot Interview: _____

Name of Storyteller: _____

Feedback Form Completed by: _____

Question	Interviewer Response
1) How would you describe the flow of the interview? Please explain:	
2) How did the length of the interview feel? Are there too many questions, or too few?	
3) Did the introduction work to ensure confidentiality? Was there reason for any hesitation?	
4) Were there questions or topics that you think are missing? Or, questions that should be taken out?	
5) Were there questions that you felt were uncomfortable for the storyteller? If yes, do you feel they should be changed or taken out? Please describe.	
6) Are there any questions that were unclear for the storyteller? How could they be made more clear?	
7) Were there questions/topics that you felt were difficult to ask? If yes, do you feel they should be changed or taken out? Please describe.	
8) Do you have additional comments?	

Our Voices
Our Land

Tips for Interviewers:

Create a Comfortable Environment

• Be sensitive to your storyteller's time, commitments, and transportation needs.

• Be genuine and show interest in your storyteller.

• Turn off any mobile devices that may cause a distraction (other than recording equipment).

• Ask one question at a time and avoid interrupting the storyteller.

• Be aware of your language and words the storyteller may not be familiar with. Take your cues from them and use their wording.

• Allow for silences; they give the speaker a chance to think. Use periods of silence to review your interview guide or write down brief notes.

• Take breaks as necessary.

Be Mindful of Your Body Language

• Mirror the storyteller's language and body language.

• Try not to gesture or make sharp movements while listening to the story; it may distract the storyteller or create discomfort.

• Your body language, responses, and facial expressions should match the story being told.

• Maintain eye contact as culturally appropriate and try not to be distracted by your papers or recording equipment. If you need to review your questions during the interview, find a moment after they are finished speaking to pause and review your notes.

• Avoid chewing gum, eating and rustling papers during an interview.

Avoid Expressing Judgment

• Let your storyteller know that they are the expert on the topic and that there is no "right" answer. This can be stated explicitly and conveyed through nonverbal cues like encouraging smiles and nods.

• Be culturally sensitive; do not be openly judgmental if you hear things that are unfamiliar or that you disagree with.

• Do not state your opinion, agree, or disagree with anything that is said. Your role is to ask questions, record what is said, and minimize your influence on the storyteller's responses.

• Emotional reactions may occur and it's best to be prepared; give your storyteller time and show respect if they cry or become upset.

Our Voices
Our Land

Recording Stories

One of the best ways to ensure that your storytelling project is successful is to record the interviews into audio files and transcribe the recordings into text. While this may create more work and organization up front, there are many reasons why recording and transcribing will make your project stronger in the long haul.

- You can record the story teller's words verbatim. This minimizes unintentional interpretation by the story collector/interviewer.

- It will allow you to listen to them again in order to create a shared analysis of what you hear.

- Recording allows you to keep an archive of community history and information that can be made available to other community members and generations.

Recording Device Examples

Most recording devices today are digital (remember when there were "tape recorders"). You just need to select a device that makes the most sense given the resources you have available to you and how you want to use the recording.

- **Cell Phone**: Most cell phones can record audio. Check your phone's manual to see how long recordings can be and if you can download the file to a computer. The cell phone is probably the easiest and most accessible way to record an interview, however sound quality might not be very good. Make sure your phone is fully charged before using.

- **Portable Digital Recorder**: Most current portable digital recorders will allow you to download your audio files to a computer. Most also have built in microphones. You may want to consider using an external microphone to capture better quality audio. Portable digital recorders allow you to capture and store hours of audio. They can range from a couple of hundred dollars to several thousand dollars. If you choose to use an external microphone, you will probably want to wear headphones to monitor the audio quality during the interview.

Capturing stories for future use (examples might include playing back in a listening session or using as part of a film or video) will require higher quality audio so it would be necessary to use an external microphone.

Before you collect a story with a recording device, get comfortable with your equipment. Record yourself, a friend, or others working on the project with you. Even though it may be hard, try to familiarize yourself as much as possible with the user's manual for any equipment you might be using.

It is important to take notes during the interview in case your recording equipment fails. Take notes that capture the main points of discussion as well as your personal reflections. If necessary, ask the interviewee to slow down or repeat key points to make sure they are recorded. If the interview is over the

Our Voices
Our Land

Tip: There is software that will 'automatically' transcribe audio recordings to text, but we've found these programs are not very accurate. As technology evolves and the software improves, automated transcription programs may become a better option. For now, we recommend manually transcribing your interviews.

phone, it is sometimes easier to type while the interview is taking place. If the interview is face-to-face, taking hand-written notes may be necessary.

Transcribing Your Stories

Once all of the stories have been collected and recorded, they can be transcribed or typed into a written format. This process is extremely time-intensive. Plan ahead! If possible, budget in paid transcribers. If you are using volunteer transcribers, make sure to start early. Set up a transcribing timeline.

Transcribing is a great time to involve community members or volunteers. Be sure to have transcribers sign a confidentiality form. We have included an example confidentiality form in the Appendix (pages 59-60).

You will need access to word processing software such as Microsoft Word or Open Office. Depending on how long your interviews are, you may want to use transcription software such as Express Scribe (bit.ly/express-scribe). Express Scribe is a free downloadable transcribing software which allows you to adjust the timing and volume so that it slows the audio down to a pace which is easier to type without stopping and reviewing.

3 Tips for Transcription

1. Clearly identify your transcription document. This way you can easily link it back to the correct recorded interview.

   How:

   • Begin your transcription with the name of the file (Last name, first name of interviewee and date) and your name (transcribed by...)

   • Add a footer to the document that includes: the name of your project (if you have one),the name of the file and page numbers.

2. Identify the person who is speaking.

   How:

   • Mark the person who is speaking by using initials. If the storyteller wishes to remain anonymous, just use 'ST' for storyteller.

   • Use single space and separate sections with a space when changing speakers.

3. Convey speaking style and emotion in the text.

   How:

   • Generally include "you know," "um," and so on.

   • If there's a significant pause, ad (pause) – you can also indicate (short

Our Voices
Our Land

pause), (3 second pause) and so on to distinguish between lengths of pauses.

• If someone laughs, cries or sighs, include (laughs); (starts to cry softly); (sighs), etc.

• If you can't hear something or can't understand include (can't hear), (can't understand) or if it is in another language you can say (something in Spanish – can't understand).

• If there is a tone in the voice which you can hear but may not show up in the language, you can include (say sarcastically).

Letting the Stories Sink In: Analyzing and Coding the Data

Strategies to Analyze and Organize Interview Data

After the interviews are transcribed, you can begin coding them. Coding is the process of identifying themes in the stories. The stories shared are the "data" we will analyze. Coding the stories (or data) allows us to identify common and unique themes and to organize the stories into a single, coherent story that weaves in elements and themes from the body of individual stories. One easy way to think about coding is to see it as a personal filing system. You place data in the code just as you would file something in a folder. A systematic way to code data is to ask yourself the following questions as you read the text:

- What is this saying? What does it represent?
- What is this an example of?
- What do I see is going on here?
- What is happening?
- What kind of events are at issue here?
- What is trying to be conveyed?

The word, number or symbol that you assigned to the item of data in answering such questions is a code. These are labels that classify items of information. We recommend using words or phrases as codes and in your notes for later ease of analysis (sometimes numbers and symbols can be confusing).

There are two ways to categorize interview or narrative data – using preset or emergent categories.

- **Preset categories**: you can start with a list of themes or categories in advance. These are the things that you already know, what you already anticipated finding in the interviews. These themes provide direction for what you look for in the data.
- **Emergent categories**: these are themes or categories that emerge as you read through the text and are defined as a result of working with the data.

Sometimes you can combine these two approaches – starting with some present categories and adding others as they become apparent. We recommend not creating too many codes as the person doing the coding can become overwhelmed or make mistakes if there are too many.

Refining Your Codes

As you code your data, you will add, collapse, expand and revise the coding categories. This is especially true of the pre-set codes. Sometimes what you expected to find in the data won't be there. It happens.

Some codes simply do not work or overlap too much with other codes. Sometimes a code will open up in a way that creates too much data. In this case, the code needs to be broken down into sub-codes in order to better organize the data. The rule of thumb for coding is to make the codes fit the data, rather than trying to make your data fit your codes.

Once you have assigned codes, create a codebook that should have the following:

- Name of the code

- Brief description of the code

- Example of the code

- If possible, group your codes by ones that have common themes and place them under one heading.

Go through the transcripts and apply the codes. Remember, if you find that you need to create a new code, you will need to go back through the previous transcripts to see if there are places where that code applies.

Coding "Notes"

Finally, as part of the process of coding, it is important to jot down notes of your reactions and ideas that emerge. These ideas will help you with your analysis. These notes may suggest new interpretations, as well as connections with other data. Moreover, if you are mindful of what is growing out of the data, your notes will usually point toward questions and issues for you to look into as you code and collect more data.

Different Ways to Code

Your process of coding will depend on your goals as well as how many people are involved in this stage of your project. The more creative you are, the more exciting and illuminating your analysis will be!

- Print your transcripts out in different colors and cut up the pieces of the text. Write the name of each code on a separate piece of paper and tape

Our Voices
Our Land

them on the wall. Tape the pieces of paper on the wall under the appropriate codes.

• Code directly in the file. You can highlight text in different colors for each code to make them more visually identifiable. If you have access to the internet, use a file sharing platform like Google Drive so you can collaborate with others.

• There are computer programs that can help with the analysis of interview transcripts. You can use the programs to perform many tasks, such as coding, writing personal comments on the interviews, doing work counts and searching for key words. They are much faster than manually coding the data and can save hours of work. While these programs can help you organize the data more efficiently, they are not substitutes for your analysis of the data. Here are some examples of possible programs your can use:

- RQDA (free): www.rqda.r-forge.r-project.org
- NVIVO: www.qsrinternational.com/products_nvivo.aspx
- Dedoose: www.dedoose.com

• Coding and analyzing your data is the perfect place to create a participatory space with other community members. Collective analysis also helps to bring in other perspectives and create community buy in.

**Our Voices
Our Land**

👥 Activity

🕐 30 minutes

✎ Materials

- ☐ Flip Chart Paper
- ☐ Scissors
- ☐ Markers
- ☐ Tape
- ☐ Cut out transcript cards (different pieces of text from the transcriptions cut up)

Sample Coding Exercise

Note: this exercise is designed to take place after you have collected your stories from your community.

🏆 **Goals of Exercise**
  ✔ Collectively develop codes based on the stories you gathered from your community

📑 **Agenda**
  1. Coding Exercise: 30 minutes

⚙ **Set up**
  ✔ Print Transcript Cards (page 36)

  ✔ On the Transcript Cards write or paste short passages from your collected transcripts.

Facilitator Instructions:

1. Draw 6 buckets (2 per butcher paper). Write 2 sample codes (see below) on top of 2 buckets.

2. Break the participants into groups of 3.

3. Hand each group 4-5 Transcription Cards. Explain that these are sample passages that came out of the interviews. Note: Be sure to remove any names of people from the transcripts before creating the cards.

Butcher paper ·······
Drawn bucket ·······
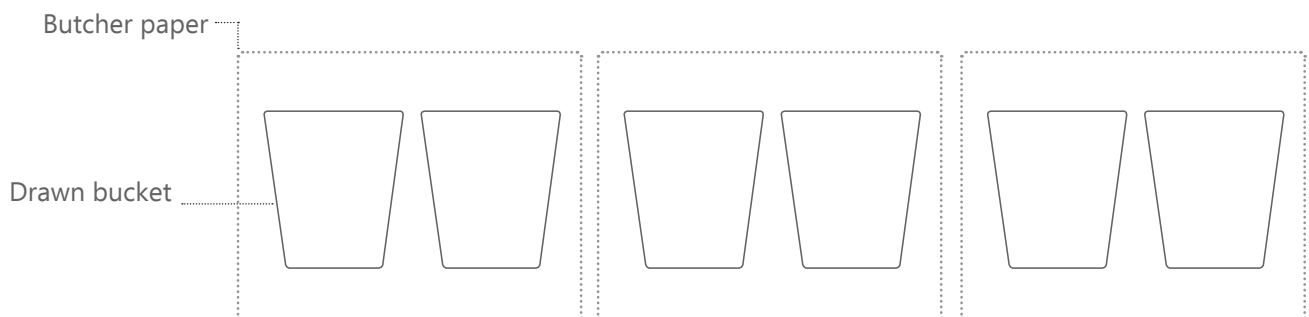
Sample codes:
- Lack of privileged access to traditional lands
- Sacred sites offer physical, emotional and spiritual healing

Big Group Practice

Before participants start working in their groups, ask if anyone has a transcript card that fits in the first bucket. If there are many, pick one person. Ask them to bring it up, and tape it in the bucket. Repeat for bucket 2. Have participant respond to why they think the card fits into that bucket.

Our Voices
Our Land

Activity

> **Explain**: The coding process is taking the text you have in your hand and thinking about what the key theme for that text is. Basically, we have "buckets" of ideas and we want to put similar ideas together and then name it. We'll put 'like' things together and name the bucket.

Now, ask if someone has a card that doesn't fit into the two buckets. Have them read it. Work with them to create a bucket by asking them what is the passage about. What is it describing? What is the general theme of the question? What is an overarching theme that is coming out of the card? Ask if anyone else has a card that has a similar theme. Have them read it aloud. Work with the group to create a new bucket. Label it, have them tape the 2 cards in it. Note, that as new text is included, you may change your buckets, take them out, or add even more.

Small Group Exercise
Now in their groups, ask them to discuss their cards. Place them in existing buckets. If none exist, have them come up with new buckets. When a group comes up with a new bucket, have them announce it to the rest of the participants.

Keep extra butcher paper in case they need to create additional buckets.

Summary
Once the activity is over, explain that each bucket is your CODE. Think of it as a bucket of similar ideas. In qualitative analysis, we group text based on similar themes and concepts. Those themes and concepts are then outlined in the report.

Ask participants – what new buckets were created?

Transcript Cards

Mapping for Advocacy and Self-Determination
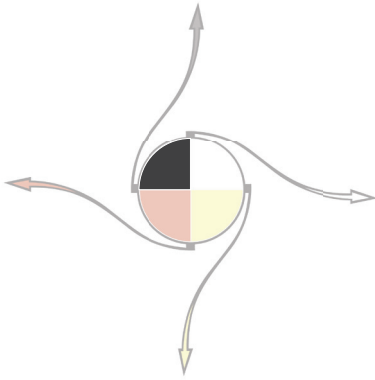
Reclaiming the Map

In recent years, there has been a growing effort to promote community engagement in decision-making processes concerning many aspects of governance ranging from participatory budgeting to natural resource management. Participatory mapping has emerged as a powerful tool that allows marginalized communities to represent themselves spatially, bringing their local knowledge and perspectives to the attention of governmental authorities and decision-makers.

Participatory mapping has been used to create maps that represent land and resource use patterns, hazards, community values and perceptions, to gather information on traditional knowledge and practices, to collect data for assessments or monitoring, to present alternative scenarios and to empower and educate stakeholders. Maps have been used intentionally against native people as a way to take natural resources, change territorial boundaries without consent, override treaties, invade communities and in effect as a tool towards fathering the genocide of indigenous, first nations and tribal people in North America and around the world. For indigenous communities, poor communities and communities of color, maps and mapmaking can be a form of resistance to the historic and continuing colonization and oppression of land and people. This resistance is integral to the cultural, spiritual and physical survival of our communities.

Intro to Mapping

The following section will help you map your stories by exploring the technology and software options available to you and how to use them. We have designed this section for people and organizations with little to no money or resources. Since maps are potent tools of social change (and social domination) it is important that this process be accessible to all peoples, regardless of their financial situation. By the end of this section, you should have a good handle on how to create a map in a way that clearly portrays the elements of the earth that are important to your community or featured in your stories.

Maps have been used to support community self determination and advocacy in fields such as public health, education and environmental justice. Yet, throughout history and today, maps have also been used to establish and defend borders, colonize land and people, extract resources, and divide communities politically and economically.   For indigenous communities, map making is frequently practiced to honor human relationships with the earth, to understand places of historical and cultural significance, and to protect these

Our Voices
Our Land

areas from exploitation. For indigenous cultures, the earth is a living, breathing relative and indigenous maps will likely reflect these beliefs.

Participatory mapping, or community-based mapping combines the tools of modern cartography or map-making with participatory methods to create a representation of the spatial knowledge held by communities. We know that we are the experts of our environments and the places where we live, work and practice our cultures. Participatory maps can show the landscape in ways that are often left out of mainstream or official maps.

Digital Mapping

We will spend a lot of time talking about creating digital maps that can be printed and published. Creating digital maps, while just one way of mapping, can present a more technically "accurate" map. In creating this toolkit, based on our project with the Winnemem Wintu, we assume that highly accurate mapping is necessary for creating maps to be used to advocate for the protection of sacred sites, other cultural resources or traditional lands. The Winnemem have had to compare the location, height and other dimensions of their sacred sites to projections of where Lake Shasta borders would extend if the Shasta Dam is raised by a certain number of feet. This requires a high degree of accuracy. There are many ways to conduct participatory mapping that we won't cover in this toolkit such as making hand drawn maps or using existing printed maps and doing facilitated exercises.

Terminology

Digital map making has its own language and distinct terminology. In order to learn how to make a digital map we need to familiarize ourselves with this language.

Please refer to the **Terminology Glossary** (pages 61-62) for a full list of map-making terms.

Our Voices Our Land

👥 Activity

🕐 15 minutes

🔗 Materials

- ☐ Bingo sheets for each participant (pg 40)
- ☐ Mapping Terminology Bingo Cheatsheet (pg 41)
- ☐ Markers or pens

Mapping Terminology Bingo

Summary:
Participants match the term with the correct definition to collectively learn mapping terminology.

Facilitator Instructions:

Give each participant a bingo sheet. A sample bingo sheet is pictured below, however you will want to make a few versions that mix up the placement of the words so that there are several versions of the sheet in circulation.

Explain that you will call out the definition and the participants must match that definition with the correct word on the bingo sheet. If you fill in 4 across, 4 down or 4 diagonal you can yell Bingo!

After someone gets Bingo, review the terms. Were there terms that participants did not understand? Be sure to review any terms not covered.

Our Voices
Our Land

Mapping Terminology Bingo

Basemap	Layer	Line	Attribute
Geographic Information System (GIS)	Latitude	Geocode	Coordinate
Global Positioning System (GPS)	Longitude	Keyhold Markup Language (KML)	Spatial Analysis
Waypoint	Google Earth	Polygon	Metadata

Mapping Terminology Bingo Cheatsheet

Our Voices
Our Land

Basemap: Also termed as "mother maps." These maps go at the base of other data and provide simple points and lines with an environmental context.	**Layer**: In GIS computer programs a layer is data—such as a basemap or a collection of waypoints—that sits between other layers of data. The arrangement of layers in a GIS program determines how the data will be visualized.	**Line**: a collection of waypoints which might represent a trail or a path from one point to another.	**Attribute**: a descriptor of waypoint, line or polygon
Geographic Information System (GIS): A system (usually a computer program) that allows you to store, manage, manipulate and visualize geographic information that you obtain in the field.	**Latitude:** Imaginary lines running from east to west across the surface of the earth that are numbered to give each point on the earth's surface it's own unique latitudinal placement.	**GeoCode/GeoTag:** To associate a given object—such as a picture, building or geographic feature—with its proper longitude and latitude.	**Coordinate**: either of the two lines of latitude and longitude whose intersection determines the geographical point of a place.
Global Positioning System (GPS): A network of satellites, signals and receivers that allow you to record the longitude and latitude of a given location.	**Longitude**: Imaginary lines running from the North to South Pole across the surface of the earth that are numbered to give each point on the earth's surface it's own unique longitudinal placement.	**Keyhole Markup Language (KML):** Keyhole Markup Language expresses geographic annotation and visualization within Internet-based, two-dimensional maps and three-dimensional Earth browsers. It was originally designed to be understood by Google Earth but most GIS programs are able to import and project these files.	**Spacial analysis**: the techniques applied to structures at the human scale, most notably in the analysis of geographic data.
Waypoint: A point on the earth's surface defined by a specific longitude and latitude.	**Google Earth:** A free program that allows you to visualize and explore the earth's surface as well as mark and label your own features.	**Polygon**: shapes in space that you can create by using waypoints as corners.	**Metadata**: Information that describes the content, quality, condition, origin, and other characteristics of data or other pieces of information.

Our Voices Our Land

👥 ACTIVITY

🕐 15 minutes

🔖 Materials

- ☐ Blank paper
- ☐ Markers
- ☐ Pens
- ☐ Glue sticks
- ☐ Scissors
- ☐ Multi colored paper
- ☐ Fun stickies
- ☐ Glitter (anything you have that could make the maps more creative)

Map Your Journey Exercise

15 minutes

Summary:
Participants draw a map of how they got to this workshop and discuss in pairs the similarities and differences.

Facilitator Instructions:

Pass out a sheet of paper to each participant. Ask them to draw how they got to this room today. Give this portion five minutes.

When the participants have finished drawing, ask them to pair up with the person next to them and share some elements of the map. What did they draw and why? What is similar or dissimilar about their maps? After five minutes ask for a brief reportback from each group.

Summary:

There are many different ways to make maps. They can be a representation of experiences and facts. Some of you made maps that showed a whole lifelong journey and others made maps that showed your exact route to this room starting this morning. Depending on your experience and context as well as what you want to represent, your map might take different forms.

Our Voices
Our Land

Exploring Mapping Techniques

Cartography is a practice that goes back thousands of years. Our ancestors made maps to show spiritual and cultural connections with the land, to find food or other resources, to relate to each other and neighboring communities, and for many other reasons. For as many reasons as there are for map-making there are as many kinds of maps. You might want to consider choosing a different kind of mapping based on the goals and expected outcomes of your project.

Mental Maps - These are the maps we all carry in our minds. These maps can only be obtained by knowing the land intimately. When we walk upon the earth we have a sensory experience specific to that place. When many people have had the same sensory experience, it becomes a unifying knowledge that we share with others. When everyone in the given society has the same mental map of the world in their minds, it gives members of that society a sense of relationship and belonging. This is a kind of map that almost anyone can make.

Story Maps - This kind of map is very common within indigenous communities. Wisdom Sits in Places was written in 1996 by Keith Basso about Western Apache lands. Basso explains the various stories that Western Apache people associate with specific landmarks. Each story carries a certain lesson for the people. People can therefore communicate certain morals by simply speaking the name of that specific place. As such, many Apache "speak in places."

Nearly all indigenous cultures have stories that are associated with specific places. Basso did not make a conventional map with imagery and pictures, but he made a map with his words that explained which stories went along with which place. We can even attach audio files to specific waypoints on a Google Earth map so that anyone with a computer and Internet can learn the stories.

Song Maps - Geography can be encoded in song. For example, in Diné cosmology there are four very important mountains: Tsisnaasjini' (Blanca Peak), Tsoodził (Mount Taylor), Doko'oosliid (San Francisco Peaks) and Dibé Nitsaa (Hesperus). There is one mountain for each of the four directions. In many of the Diné ceremonies you will hear these mountains referred to over and over in clockwise order. You can imagine Diné children listening to these songs over and over until a kind of imagined map emerges in their minds. Even if a young Diné child has not visited each of these mountains, they have an idea of where they are in relation to one another.

Countless other cultures have incorporated places into their songs in a way that provides the listener with an understanding of the land and its personality. There are many benefits to this kind of map. They cost no money and require no technology to create; they can encode other morals and stories within each specific place; and they are very beautiful maps because they involve music and harmony.

Schematic Maps - These are maps that do not attempt to be an exact replication of the land. Rather, these maps give people just a general idea of the land. These maps can be very useful if you do not actually want people to be able to

Our Voices
Our Land

use the map to find sacred places. People can see how the landscape looks and even learn different things about certain places, but they cannot actually use the map to find these places. You could make a schematic map using a pen or pencil or desktop editing software like Adobe Illustrator or Pixlr Editor.

Movie Maps - With Google Earth you can actually create virtual tours of any place in the world. With one click of the mouse you can begin recording a movie. Once you click "record" you can begin navigating through Google Earth. You can go into street views, ground level views, click on photos you've added to the map, revolve around a sacred mountain and zoom in and out. Anything you do after you click "record" will be saved so anyone can see exactly what you see. You can also arrange a set of places into a place folder and Google Earth will automatically create a tour out of these places for you. Anyone with Google Earth on their computer can view your guided, narrated tour.

Schematic map of Winnnemem Wintu homeland.

3D Maps - There are two different kinds of 3D maps. If you are a more visual and hands-on kind of person, you can build, carve or sew a map. The benefits of 3D maps like this are that they can be held and viewed in a very interesting way. The difficulty associated with these kinds of maps is it may be hard to replicate and share with others across great distances. Digital maps can also be presented in a three-dimensional format as you may have seen in Google Maps or Google Earth.

Danced Maps - Different cultures communicate in different ways about the Earth's beautiful surface. In Hawaiian culture there are specific oli (chants) and mele (songs) that go with specific hula (dances). Popular culture has done much to commercialize and tokenize the sanctity and beauty of the ancient practice of hula. Traditionally, hula can be used to communicate about a particular landscape. As the mele is sung about the land a corresponding choreography

Corn pollen pouch map of the four sacred mountains of the Diné

3D map of the Hawaiian Islands on koa wood.

Our Voices
Our Land

is danced. Moves are made to show the person is looking over a certain vista on the islands. Hand motions are used to symbolize the presence of certain waterfalls or used to trace the outline of the hills. These can be danced at the particular site or elsewhere.

Many cultures use dance as a means of communication. Since not all native peoples think and communicate in Times New Roman, this is a good way to talk about our lands. When you are trying to communicate ideas to more literate-heavy cultures, such as a university or a government office, you may consider supplementing this danced map with a map that they can easily digest and understand such as a paper map.

Linguistic Maps - This refers to all kinds of different maps that describe the intersection between land and language. Conventionally, a linguistic map refers to a map of all the languages spoken in a given area. Linguistic maps can also be used to preserve and teach traditional languages. These can be fun, interactive and help members of your society retrieve fading knowledge about the land. You can probably imagine what these maps would look like. Any one of the maps mentioned above can be made into linguistic maps by pinning the traditional name of the place onto the map in some fashion. You may want to make your map bi-lingual.

Linguistic map of Australia displaying the strength and diversity of indigenous languages

In the human consciousness, language is a major indicator of a unique ethnicity. In 2012, a report was created to explain the effects of dam construction on Winnemem Wintu homelands. Because the Winnemem Wintu's federal recognition was taken away in 1985, it has been difficult for them to validate their presence in the region. By using traditional names for each of the sacred places on their maps, it reinforced the reality that an ancient culture with its own language had been there long before 1985.

Freehand Maps - All maps are culturally biased. For instance, western wall maps typically show Europe and North America disproportionately sized as compared to Africa or South America. But what happens when community members draw their traditional homelands? This kind of map would likely look completely different. In this way we can generate, for example, Mohawk-centric, Hupa-centric or O'odahm-centric maps. Some people see the land with north as the upper direction of the map. The Lakota begin their ceremonies by looking to the west. The Diné begin their ceremonies by looking to the east. Other groups focus mainly on the direction of an important river and see the world in terms of "up-stream" or "down-stream." These differences are important. By asking members of a society to draw a basic map we can begin to see the world through our own eyes again.

**Our Voices
Our Land**

💡 **Idle No More** is a movement that began in December 2012, originating among First Nations people in Canada and spreading internationally. The movement was started to contest the historical and current abuses of indigenous treaty rights by the conservative Canadian government. The Idle No More movement has a vision for healthy, just, equitable and sustainable communities. Idle No More calls on all people to join in a peaceful revolution to honor Indigenous sovereignty and protect the land and water.

LiveMaps - These maps incorporate events that are happening "in the now." In other words, live maps display some form of recent information or talk about events that have happened in the recent past. For instance, there is a live map that shows all of the earthquakes that have occurred in the world in the past 24 hours. A recent article in the Huffington Post featured a live map of all the **Idle No More** events around the world. It showed that there were events occurring from the Middle East to the United States to Australia to Canada to South Africa in the name of indigenous rights. This map showed the public how real and how important the Idle No More movement was for people all around the world.

A map of all the Idle No More events around the world in 2012.

MapMashups - These maps display a mix of different data sets that have already been gathered so you don't have to gather new GPS data. You can use the data that people have already gathered and layer them in a way that speaks about something important to you. You can also mix your own GPS data with other data sets. This is a great way to engage in participatory and collaborative map making. There are over 67,000 map layers available to anyone to use at geocommons. com. These layers display geo-spatial information such as coalmine locations, homelessness hotspots, etc.
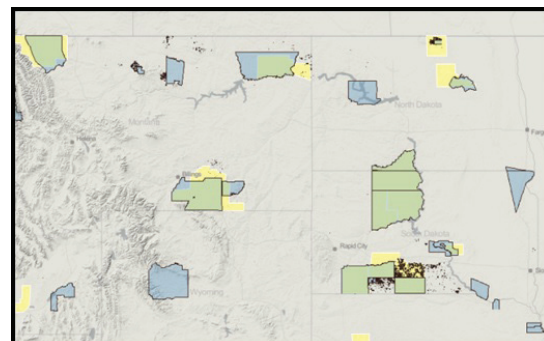
Mapping the incidence of diabetes in Native American settlements. The blue shapes are Native American reservations. The yellow shapes are US counties with at least 11% of the population having diabetes. The green shapes are where these two overlap. As you can see, most of the counties that have an 11% diabetes rate or higher are also Native American reservations in this area!

This is most definitely not a complete list of the diverse kinds of maps you can make. In your continued exploration you may find ways that better suit your needs. We hope this gives you an idea of how many creative options you have to communicate your data. Map-making has evolved from simple paper maps and we can use these new technologies and techniques to serve our people and planet.

3 Steps to Making a Digital Map

Whether you wish to create a fully Western map, a fully indigenous map, or a hybrid of both, we hope to help you discover and explore the possibilities.

1. Envisioning the Final Product

2. Gather Your Data

3. Display Your Data with Mapping Software

1. Envisioning Your Final Product

As the new day begins with the sun rising in the east, we will begin our map-making process with the east.

There are many ways to envision your final product. Designing your map based on your objectives is one way to start. In other words, build your map around its intended purpose. What are you trying to do with this map? Is it meant to communicate to people in Congress? Or to people in your community? Is it meant to teach children their native language? Is it meant to help show where a building should be erected? Or does it even have a purpose? Is it just for fun?

All of these things can be used to shape your final product to ensure your map meets your community's goals. You can draw a table on a piece of scratch paper or on your computer like the following table. In the first column, you can write all of the things you would like your map to do. In the second column, you can write about the features you will use on your map to meet those objectives.

The following table has some hypothetical **map objectives** along with some hypothetical **map features** that might help meet those objectives.

Our Voices
Our Land

Table 1. Objective-Based Design Exercise

Map Objective	Map Feature(s) that Will Achieve that Objective
Sway a Policy Decision	Have a professional/scientific appearance, clearly portray compelling data
Prove Indigenous Presence	Clearly show cultural sites with pictures/videos and indigenous labels for each site
Teach Children Native Language	Use Native names to label important places
Help People Find Sites	Include latitude and longitude, highlight/measure path lengths
Make Sure People Cannot Use Map to Find Sites	Do NOT include coordinate grid, Do NOT show major landmarks
Tell the story of a location of importance	Connect audio, image or video files to points on the map
Reach a Wide Audience	Make sure map can be made available online
Be Understandable to Elders Who do Not Use Computers	Song-map, danced map or story-map design
Bring Community Together	Gather data in teams, create maps in teams
Help Map-Makers Learn About Their Culture	Bring elders on data gathering field trips, have knowledgeable elders assist in map design and creation
Turn Map-Making into a Ceremony	Pray for the Sacred to guide you before, during and after map-making process

On a related note, you may want to consider who your audience is. If this is meant to communicate ideas to the CEO of a corporation that is threatening your homeland your map will look much different than if the map is meant to communicate ideas to youth in your community.

Our Voices
Our Land

2. Gather Your Data

Four things to think about when gathering your data are accuracy, attributes, team members and prayer.

Accuracy

How accurate do your readings need to be? With the Winnemem Wintu report, we had to know whether or not their sacred sites would be flooded by a 20.5-foot increase in the reservoir's height. Therefore, we needed very accurate altitude readings for our sacred sites to prove to decision-makers that the sites would or would not go underwater. Say you simply want to show indigenous presence in an area. Getting waypoints at each of the homes of your people and putting them on a map could be enough. Even if the waypoints were up to thirty feet off, the basic objective of displaying the approximate locations of the settlements on a map would be achieved.

Attributes

Attributes help you to describe each waypoint, line or polygon. It can be as simple as the site's native name, a picture that goes along with the site, a poem that is written at the site, a song that is traditionally sung at the site, the presence or absence of certain plants, etc. Later on, if you are making a map in Google Earth, these attributes will be seen when people click on the waypoints. If you are using OpenData Kit, create a form before your team goes out in the field that prompts them to record certain attributes each time they record a waypoint. Attributes can also be added to waypoints later on in programs like ArcGIS, QGIS and Google Earth.

Team

It might just be you going out and collecting the waypoints. But if you need help finding certain sites it may be good to bring an elder or leader who knows their way around the terrain. You may also consider bringing the youth of your community so that they, too, can have a mental map in their minds of their homelands. You can design your team in a way that makes every field trip an opportunity to learn about cultural heritage. Map-making can be a very unifying experience for members of the community. Consider inviting youth and elders to be part of your team.

Prayer

Lastly, you may want to ask for the Sacred to assist you in your time in the field gathering data. By incorporating prayer one can turn map-making into a ceremony that is guided by the ancestors.

Equipment

GPS stands for "Global Positioning System." People have drawn imaginary lines on the earth in their minds. The lines that run from the North down to the South Pole are called "longitudes." The lines that run around the earth from east to west are called "latitudes." These lines are all numbered very specifically. Everywhere you stand on the earth has a specific longitude and latitude according to this imaginary coordinate grid. GPS receivers communicate with satellites overhead to calculate the longitude and latitude of a GPS receiver. The receiver will record this

**Our Voices
Our Land**

information and communicate it to a computer program that can compose a map for you. A GPS can collect these common types of map data:

1. Waypoints
2. Lines
3. Polygons

Waypoints are a single point defined by its longitude and latitude.

Lines are a collection of waypoints and might represent a trail or a straight line from one point to another.

Polygons are shapes in space that you can create by using waypoints as corners.

Here are four receivers you can use to gather geo-spatial information in order of affordability:

1. Smartphone
2. GPS Handheld Device
3. Mapping Grade GPS
4. Survey Grade GPS

When collecting GPS data, you may also want to collect information about the waypoints, lines and polygons you mark. You can do this in a way that ensures that you have consistent categories of attributes across the data that you collect. The easiest way to do this is to create a short form or survey to chart basic information about the collected point. You can include fields like date and time of collection, name of person collecting and description of the point.

You could also take a camera with you to photograph what you are mapping. This will also ensure that you collect the same kinds of information about each point collected even if you have multiple team members collecting data. Some of the applications (apps) for use with smartphones and handheld GPS devices include the option to set up a digital form that can be filled in when you collect a point that then can be downloaded with the rest of your GPS data. If you use a smart phone, you can also take photographs without having to bring along a camera.

Smartphones
Smartphones can be a very easy way to access a GPS. They are easy to use and are often a piece of equipment that someone in your community might have already. While accessible, smartphones can be inaccurate. Waypoints can be up to 30 feet off the longitude and latitude of the actual location. It's important to consider whether or not you will be in a reception area while gathering the data and if you have a sufficient data plan to support this kind of app. These apps can also be a significant drain on a phone's battery. These consid-

erations might be more pressing if you are gathering data over multiple days or in a rural or wilderness area.

In order to turn your smartphone into a GPS receiver, you will have to download an app. You can search for and download these applications from the App Store (for iPhones) or from Google Play (for android phones).

Here are some examples of possible apps.

Open Data Kit (ODK)

Open Data Kit (ODK) is an open-source set of tools that helps organizations author, field, and manage mobile data collection solutions. ODK's core developers are researchers at the University of Washington's Department of Computer Science and Engineering department and active members of Change, a multi-disciplinary group at UW exploring how technology can improve the lives of under-served populations around the world.

ODK provides a backend database to store your data (called "Aggregate"). You can also create forms that can be loaded directly to your phone that can take the place of pen and paper when collecting information about your points, lines or polygons. The forms are easy to create on your computer using a drag and drop feature. You can also use your phone to collect a picture or audio file along with your data.

ODK is free and can be used with a Google infrastructure or be set up on your local computer. Aggregate requires a certain amount of technical knowledge to install on your local computer. However, for $130 you can purchase ODK Aggregate VM. The ODK Aggregate VM is a fully-configured install of Aggregate that you can run on any computer. It requires very little setup, works well without Internet connectivity, and gives you complete control over your data. We highly recommend this option as your data will be much more secure on a local computer than in the Google "cloud" and it will be much easier to install than the other versions of Aggregate.

ODK is only compatible with Android phones (it will not work with iPhones) and cannot be used with hand held GPS devices.
    ✔ opendatakit.org

Terraflex

As of February 2014, one of the best apps for waypoint collection is TerraFlex. This app is user friendly and well designed by Trimble Navigation Ltd. It allows you to save pictures and text along with each waypoint. You can also create customized forms so that when your team is out in the field they have the same, ready-made form to fill out for each site (e.g. creek is dry or full, certain plants are present/not present, which story elder remembers about place, etc.).

It allows you to draw polygon shapes on the surface of the earth and take automatic readings every few seconds so that you can record a trail as a line. This app has an accompanying website that is linked to your phone. On this

website you can see all the data your team has collected (even if they are using different phones) all on one map. You can also export all of your data from this website as a file that can be read in ArcGIS, Quantum GIS and Google Earth. In addition to being able to use TerraFlex on a smartphone, you can also link a handheld GPS device to the system.

One potential restriction of TerraFlex is it only gives you 30 days of free usage. Currently, the Trimble Data Manager can be obtained for $1,550 a year for up to 5 users (the people on your team who are managing the data behind the scenes). Alternatively, mobile accounts can be obtained for $250 per user per year. While this is costly, it could be a reasonable amount to request from a funder especially if the project will have a discrete time frame.

Any time you are uploading or downloading data using the internet, you run some risk of having your data compromised or encountering user errors. Terraflex states on their website that only you and users you designate will have the ability to see your information. However, there isn't any information that states where your information is stored or what they do with it after you close your account.
> ✔ bit.ly/terraflex

For iPhones there is an app called, "Waypoint – Never Lose Your Way Again," which is usable in places where there isn't cell phone coverage or internet access.

GPS Handheld Devices - Basic GPS handheld receivers can range in price from about $80-$200 with decent units priced around $130. These units usually have a horizontal accuracy of 6-15 meters. Horizontal accuracy is how far your GPS reading could be from the actual coordinates of where you are standing. "Civilian grade" GPS units are not necessarily more accurate than smartphones, depending on where you are. If you do not need a very high degree of accuracy, then you don't need to buy a handheld GPS. Smartphones are generally as accurate.

Mapping Grade GPS - If you need a high degree of accuracy, then there are some amazing technologies out there that will give it to you. The Trimble GeoXH 6000 can give you a horizontal accuracy of ten centimeters. The downside with mapping grade GPS units is they are more expensive ($1,800-$2,000 range). You may be able to team up with a local university's geography or GIS department, however, that already has these types of units for their students and faculty.

Survey Grade GPS - These receivers are accurate within one centimeter! These are usually used by land surveyors that are measuring the legal boundaries of someone's property. These systems range in price from $5,000-$20,000. If you feel you need this kind of accuracy and do not have the funding, you may consider working with a local land surveyor who is sympathetic to your cause.

Some notes on managing your files

Organizing and managing spatial data files can get confusing quickly. In the course of creating one map, you may create and use hundreds of individual files. Having a clear and logical management and labeling system for your files will make it easier for you and other members in your community who may work on your project to access your data now and in the future. Here are some resources that can help you navigate this issue.

Organizing Files and Data from the US Geological Survey:

✔ bit.ly/usgs-organizefiles

ArcMap File Management for ArcGIS users:

✔ bit.ly/arcmap-file-mgmt

Managing and Sharing Data from the UK Data Archive:*

✔ bit.ly/manage-data

*Pay special attention to the "Formatting Your Data", "Documenting Your Data", and "Storing Your Data" sections.

Designing Maps for Impact

Once you have collected all the data you want to put on the map, it's time to think about what kind of printed or digital map you want to design.
The best place to start is to return to the goals that you set out at the beginning of the project. Your goals will dictate what kind of map will be most impactful for what kind of change you are hoping to achieve. You may want to dig out the **Research Planning Exercise** (pages 13-14) that you completed at the beginning of the project. If you want to use your map to move a decision maker towards making change for you and your community, what is your action plan for reaching this decision maker? If you plan to make a presentation and use the map to illustrate some points, it may be a different kind of format than if you plan to use the map at a rally outside the decision maker's office.

The **Map Planning Worksheet** (page 56) provides some guiding questions to help you consider what your end product will look like.

Our Voices
Our Land

3. Display Your Data with Mapping Software

In order to create a digital map, you will need to use one of any number of computer-based Geographical Information System Programs (GIS). GIS computer programs allow you to store, manage, edit, analyze and visualize spatial data and compose maps for print or web. Here we will briefly explore 4 different programs that you could use.

Google Earth | google.com/earth - Google Earth is a free, open-source program that allows you to see every square mile on the planet displayed on your computer. Its "Earth Gallery" feature allows you to overlay map layers that display earthquake and fire zones, unemployment zones, oil consumption by region, volcano locations, live storm reports and more. You can import data that you gather with your smartphone or GPS unit into the Google Earth program as well as overlay legends, banners and logos. This is an incredibly powerful tool for viewing, editing and sharing geospatial data with other people who have the Google Earth program.

The image below was created in Google Maps in under one hour without going out to gather waypoints with a GPS receiver. We simply created "placemarks" on the four sacred mountains of the Diné people and color-coded them. We also added labels for each placemark showing the traditional names of the four mountains.

As with any web-based application, data privacy should be a concern. Maps and markers that you create with Google earth are saved locally to your computer as myplace.kml and are not shared with Google or anyone else unless you explicitly select "share." Data hacking is always a concern so be sure to keep your security software up-to-date on your computer and consider creating back up versions of your map data.

Map of Diné four sacred mountains saved as an image file in Google Earth

While there are many basemaps available in the gallery, Google Earth does not have as much flexibility in terms of composing maps and importing your own basemaps. It is designed for viewing maps on the computer and not for composing maps that can be printed.

Google map engine is a good compliment/alternative to Google Earth (mapsengine.google.com/map). It's designed for building maps and basic geo analysis. It's a relatively new product (released in 2013) so it still has some glitches, but it is overall quite intuitive. It's also all web-based so you don't need to download any software. It integrates with Google Earth, and you can upload KMZ files.

For more information on how to use Google Earth please visit datacenter.org/how-to-google-earth which has a set of instructions produced by Aurora Research Institute at Aurora College in the Northwest Territories, Canada.

Our Voices
Our Land

GeoCommons | geocommons.com - GeoCommons is a great place to view and analyze spatial data. You can import your own data, import other maps from its vast library of shared data and compose a map in its map-making feature. Like Google Earth, however, this program is more about viewing maps on a computer and does not have a clear way to save the maps as image files for print. The image shown above in the MapMashup part of this section was created in GeoCommons but the only way to obtain the image was take a "screenshot" of the computer screen (for instructions on taking a screenshot of your computer screen's display: take-a-screenshot.org). Unfortunately, Geo-Commons does not have an easy way to export or share your maps.

ArcGIS | bit.ly/arcgis-freetrial - ArcGIS is probably the most sophisticated (and complicated) GIS software there is. It has a 60-day free trial available but after that the cost for ArcGIS Desktop is $1,500. A full range of tutorials to help you learn the program is available here:

- ✔ bit.ly/arcgis-help

The producers of ArcGIS give reduced price or free versions of ArcGIS to non-profits, schools, and even directly to Bureau of Indian Affairs recognized tribal organizations. You can inquire here:

- ✔ bit.ly/arcgis-indianaffairs

Quantum GIS (QGIS) | qgis.org - QGIS is an open-source computer program that allows you to store, manage, edit, analyze and visualize spatial data and compose maps for print. It runs on Windows, OSX (Mac), Linux and almost any other operating system. It takes some time to learn the ropes of this program but once you do it is a powerful way to shape and export images of your data. QGIS has a Print Composer feature that has good control and flexibility in producing a final image that can be printed and published.
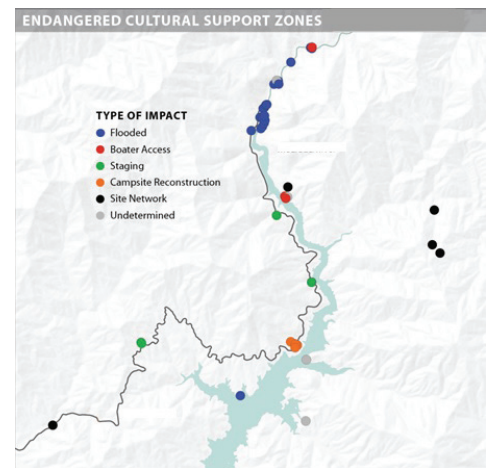
Basic map created in Quantum GIS

A great introductory training guide to QGIS is here:

- ✔ bit.ly/qgis-intro

Map Planning Worksheet

Purpose

What is the purpose of your map?	
Explain what you intend to show with your map in one sentence.	
How does the content of your map connect with your community?	

Audience

Who is your target audience? Example: your community members, decision maker, allies Suggestion: You might have more than one audience. Do you need to make more than one map?	
How do you plan to reach your audience? Example: Info sheet, report, website, video, presentation at a council meeting	
How do you need to design your map to connect with this audience? Example: What language will you use on the map?	

Structure

What facts or points do you want to include in your map?	
Do you want to include visuals (images or video) on your map?	
Do you want to include audio on your map?	

Adapted from KQED Education Network Media Planning Worksheet: Maps
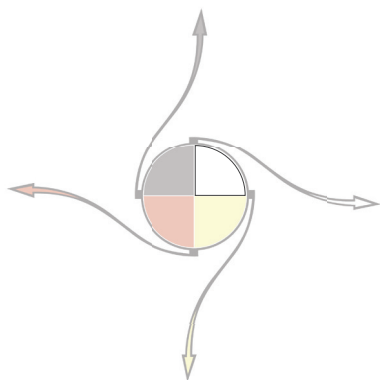
Reflection on Goals and Outcomes

Your research will inform your knowledge, messages and action. With your new information reflect on the impact of your action and generate more questions. This is the transformative nature of our work. We must thoughtfully evaluate the outcomes of our research and its impact.

For instance, we may not have succeeded in getting a policy change, but we shifted public opinion about an issue. Or, we ended up learning something new about what the community needs which has helped shift our goals to better reflect what our people want to fight for.

Intentional reflection leads to improvements in the way we approach the work. If our research is truly community-driven, it will achieve many, if not all, of the outcomes we have intended and shine light on areas where we need to improve in the future.

Goals for Reflection

- Evaluate the different stages of the project
- Generate tips/lessons learned
- Evaluate the effect of the project on our community

Sample Guiding Questions for Evaluation Discussion

These questions are meant to be conversation starters. You may find that some are not useful for your process or that there are others not mentioned here that you would like to add.

1. Review the goals of the project. Were they met and to what extent?

2. What do you feel were the greatest successes of the project?

3. What were some challenges you experienced? How would you change the project to address those challenges for future projects?

4. What impact did the project have on individual members? Did people learn new skills or take on more responsibilities?

5. What impact did the project have on your community as a whole?

Acknowledge those who made your process possible
Be sure to spend some time to thank anyone who made your process possible. You might want to hold an event to share your work and offer your thanks to people within your community and beyond who contributed. This is a great way to celebrate successes and to lay the groundwork for future collaborations.

Resources

Aboriginal Mapping Network
The Aboriginal Mapping Network (AMN) was established in 1998 as a joint initiative of the Gitxsan and Ahousaht First Nations and Ecotrust Canada. Over the years the network has grown from its humble beginnings as a knowledge sharing forum for local First Nations technicians, leaders and decision makers to become a valuable strategic resource for practitioners of traditional knowledge mapping around the world. The AMN now has a mandate to support aboriginal and indigenous peoples facing similar issues, such as land claims, treaty negotiations and resource development, with common tools, such as traditional use studies, GIS mapping and other information systems.
- ✔ nativemaps.org

Open Forum on Participatory Geographic Information Systems and Technologies
An electronic forum on the participatory use of geo-spatial information systems and technologies. Forums are hosted in English, Spanish, Portuguese and French.
- ✔ ppgis.net

Grassroots Mapping
Grassroots Mapping is part of the Public Laboratory for Open Technology and Science, founded by a group of activists, educators, technologists, and community organizers interested in new ways to promote action, intervention, and awareness through a participatory research model. They have open data available for public use and information on how to make low-cost environmental sensing tools. They also provide technical assistance.
- ✔ grassrootsmapping.org

Geospatial Innovation Facility, University of California Berkeley
The Geospatial Innovation Facility (GIF) at UC Berkeley's College of Natural Resources provides leadership and training across a broad array of integrated mapping technologies. Their goal is to help people better understand the changing world through the analysis and visualization of spatial data. They develop engaging applications that leverage and build upon state-of-the-art geospatial and web technologies, and provide opportunities for researchers to learn how they can use spatial data to answer critical questions. GIF rents handheld GPS devices to the public.
- ✔ gif.berkeley.edu

Sample Consent Form
Consent to Participate in Research

Title of Study (Designate any subject sub-group here, e.g., "Community Members")

Introduction and Purpose
My name is _____. I am a(n) [describe your relationship to the project]. I would like to invite you to take part in my research study, which concerns [briefly explain study purpose].

Procedures
If you agree to participate in my research, I will conduct an interview with you at a time and location of your choice. The interview will involve questions about [themes, types of questions]. It should last about [time]. With your permission, I will audio record and take notes during the interview. The recording is to accurately record the information you provide, and will be used for transcription purposes only [if accurate]. If you choose not to be audio taped, I will take notes instead. If you agree to being audio taped but feel uncomfortable at any time during the interview, I can turn off the recorder at your request. Or if you don't wish to continue, you can stop the interview at any time.

[If applicable:] I expect to conduct only one interview; however, follow-ups may be needed for added clarification. If so, I will contact you by mail/phone to request this. [Provide more information about follow-up interviews including when they would occur, how many there would be, types of questions if different from the original questions, etc.]

Benefits
There is no direct benefit to you from taking part in this study [or state direct benefits if they exist]. It is hoped that the research will [describe benefits to society/ scientific knowledge as applicable].

Risks/Discomforts
[Describe any potential risks/discomforts from study participation and what will be done to minimize and/or address these risks, e.g., "Some of the research questions may make you uncomfortable or upset. You are free to decline to answer any questions you don't wish to, or to stop the interview at any time."] As with all research, there is a chance that confidentiality could be compromised; however, we are taking precautions to minimize this risk.

Confidentiality
Your study data will be handled as confidentially as possible. If results of this study are published or presented, individual names and other personally identifiable information will not be used [if appropriate, add phrase here such as "unless you give explicit permission for this below"]. To minimize the risks to confidentiality, we will... [Explain data security measures to be taken, e.g., storage, coding, encryption, limited access to study records, etc.]

When the research is completed, I may save the recordings and notes for use in future research done by myself or others. I will retain these records for up to ___ months/years after the study is over. The same measures described above will be taken to protect confidentiality of this study data. [Or if different, give accurate information about retention and use of study data in the future, e.g., "I will destroy the recordings and notes at the end of the study"].

Compensation
[Include information on payment or other types of compensation as applicable, specifying method and timing of payment, e.g., "To thank you for participating in this study, you will receive a $20 gift card for _____ after you complete the interview."]

[OR, if there will be no payment/compensation:] You will not be paid for taking part in this study.

Rights
Participation in research is completely voluntary. You are free to decline to take part in the project. You can decline to answer any questions and are free to stop taking part in the project at any time. Whether or not you choose to participate in the research and whether or not you choose to answer a question or continue participating in the project, there will be no penalty to you or loss of benefits to which you are otherwise entitled.

Questions
If you have any questions about this research, please feel free to contact me. I can be reached at [phone number] or [email address].

CONSENT

You will be given a copy of this consent form to keep for your own records.
If you wish to participate in this study, please sign and date below.

_____
Participant's Name (please print)

_____   _____
Participant's Signature   Date

[Optional/If applicable]

If you agree to allow your name or other identifying information to be included in all final reports, publications, and/or presentations resulting from this research, please sign and date below.

_____   _____
Participant's Signature   Date

Terminology Glossary

Advocacy Mapping: Mapping techniques used to influence audiences and decision makers outside the indigenous community that is conducting the mapping work.

ArcGIS: A state-of-the-art computer program that allows you to store, manage, edit, analyze and visualize spatial data and compose maps for print.

Basemap: Also termed as "mother maps." These maps go at the base of other data and provide simple points and lines with an environmental context.

Close-ended question: A question that elicits a "yes" or "no" response.

Coordinate Reference System (CRS): Imaginary models of the earth's surface defined by a coordinate grid of longitudes and latitudes.

Counter-Mapping: This refers to efforts to map "against dominant power structures, to further seemingly progressive goals." First coined in 1995, it was used to describe the maps of indigenous Indonesians that were used to contest state maps of forest areas that undermined indigenous interests.

Digitize: Conversion of graphic maps to digital maps that can be read and manipulated by computer programs.

Empowerment Mapping: Mapping techniques intended to inform the indigenous community and its own decision makers.

GeoCode/GeoTag: To associate a given object—such as a picture, building or geographic feature—with its proper longitude and latitude.

Georeference: Setting a graphic map in its proper place on the earth's surface according to a specific Coordinate Reference System (CRS).

Geographic Information System (GIS): A system (usually a computer program) that allows you to store, manage, manipulate and visualize geographic information that you obtain in the field.

Global Positioning System (GPS): A network of satellites, signals and receivers that allow you to record the longitude and latitude of a given location.

Google Earth: A free program that allows you to visualize and explore the earth's surface as well as mark and label your own features.

Horizontal/Vertical Accuracy: Usually measured in meters or feet, the horizontal accuracy tells you how far away your GPS reading might be from the actual longitude and latitude of the object you are trying to locate.

Informed consent: When a storyteller gives permission to be interviewed after they are given knowledge of the possible consequences of their participation.

Keyhole Markup Language (KML): Keyhole Markup Language expresses geographic annotation and visualization within Internet-based, two-dimensional maps and three-dimensional Earth browsers. It was originally designed to be understood by Google Earth but most GIS programs are able to import and project these files.

KMZ Files: These are simply compressed KML files and are understood by computer programs exactly as they understand KML files.

Latitudes (y-coordinate): Imaginary lines running from east to west across the surface of the earth that are numbered to give each point on the earth's surface it's own unique latitudinal placement.

Leading question: A question that is phrased in a way that suggests to the storyteller an answer that the interviewer is hoping to hear.

Loaded word: A word that has a definite positive or negative connotation that may influence a storyteller's response to a question.

Longitudes (x-coordinate): Imaginary lines running from the North to South Pole across the surface of the earth that are numbered to give each point on the earth's surface it's own unique longitudinal placement.

Layer: In GIS computer programs a layer is data—such as a basemap or a collection of waypoints—that sits between other layers of data. The arrangement of layers in a GIS program determines how the data will be visualized.

North American Datum (NAD): A datum is a formal description of the shape of the earth along with an "anchor" point for the coordinate system. In cartography, two datums are in use: the North American Datum of 1927 (NAD27) and the North American Datum of 1983 (NAD83).

Open Source: This refers to free computer programs that can be downloaded by anyone from the Internet such as QGIS and Google Earth.

Open-ended question: A question that elicits a more detailed response than "yes" or "no."

Pilot interview: A draft interview that is tested with a small sample group that represents the expected interview-ees. It's purpose is to reveal any changes that need to be made to the interview (content, structure, etc.) before it is implemented on a larger scale.

Plugin: A piece of software that attaches to a computer program and allows that program to perform certain tasks that it could not perform alone.

Prompting question: A follow-up question that encourages your storyteller to elaborate or clarify a given response.

Quantum GIS (QGIS): A free computer program, similar to ArcGIS, that allows you to store, manage, edit, analyze and visualize spatial data and compose maps for print.

Rapport: A bond, mutual understanding

Raster Image: An image defined by a limited number of pixels.

Shapefile: A set of several digital vector files that store geometric location and associated attribute information. They come in a set of at least three files with extensions SHP, SHX and DBF. See bit.ly/shapefile for more information on shapefiles.

UTM: Military grid system based on the transverse Mercator projection, applied to maps of the Earth's surface extending from the Equator to 84 Degrees north and 80 degrees south latitudes

Vector Image: An image that uses abstract geometric expressions to render an image, thereby allowing it to be zoomed into and out of without compromising image quality.

Waypoint: A point on the earth's surface defined by a specific longitude and latitude.

World Geodetic System (WGS): The standard Coordinate Reference System used by cartographers.

Identify organizing & research goals

✂ -

Determine Audience

This page is intentionally left blank

Do background and supplemental research
(Literature review, etc)

✂ -

Decide on key research questions

This page is intentionally left blank

Assess capacity/ timeline/ resources

✂ -

Design data collection tools

Create data storage

✂ -

Analyze data

Package data and disseminate to your audience

✂ -

Train people to use tool

This page is intentionally left blank

Collect data

✂ -

This page is intentionally left blank