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Master's Project: Intervale Out Loud: A Place-based Oral History Project

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INTERVALE OUT LOUD:
A PLACE-BASED ORAL HISTORY PROJECT

A Project Presented

by
Kate Blofson

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The Faculty of the Graduate College

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In Natural Resources

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Abstract

Landscape analysis explores the social and ecological processes that drive landscape patterns, and is closely allied with landscape ecology and geography. UVM's PLACE (Place-based Landscape Analysis and Community Engagement) Program is a collaboration with Shelburne Farms, and uses landscape analysis to express an integrative “story of place” through the lenses of the physical, ecological and cultural landscapes. While landscape analysis field methods address the physical and ecological landscapes, no clear methodology has emerged to support a holistic analysis of the cultural landscape and an understanding of relationships with place. Oral history is an open-ended, flexible method that engages diverse perspectives and generates rich detail and context in long-form narratives. It has produced important ecological knowledge, as well as other social benefits, for natural resource planning (Holmes and Pilkington, 2011; Colburn and Clay, 2007; Robertson and McGee, 2003). Using the rich cultural and ecological landscape of the lower Winooski intervale in Burlington, VT, as a case study, this project explored the value of oral history as a methodology in landscape analysis, with a particular focus on land use practices (including agriculture, foraging, and hunting); ecological information and site-specific stories; feelings and values about the land; and visions for its future. Oral histories produced important stories and knowledge about landscape change and natural communities in the lower Winooski intervale, as well as revealing meanings and values useful for an integrative and inclusive understanding of place. From oral histories, short audio pieces were produced and incorporated into an interactive, web-based “sound map”, demonstrating how sound and stories can be used to explore and express sense of place.
Dedication

This project is dedicated to my aunt Lorraine Blofson Brown, who tended our family stories. She is sorely missed.
Acknowledgements

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Introduction

Landscape analysis explores the cultural and ecological processes that drive landscape patterns. Closely related to the fields of geography and landscape ecology, it bridges the social and natural sciences, drawing from natural history observations and field methods as well as historical research and maps. Landscape analysis, like other ecological research, is utilized to support conservation goals and inform natural resource management and landscape planning; for lay audiences, it also offers an ecology-based framework for facilitating engagement with nature and place. Many people are familiar with landscape analysis through the popular “reading the landscape” writings of ecologist Tom Wessels and environmental historian William Cronon, who integrate human history into landscape stories rooted in ecology.

Reading the landscape provides a lens to understand ecology and ecosystems, as well as the impacts of human land use, with the hope that this understanding and analysis will inspire a more considered land use ethic in the future. It can offer an integrative view and a way to cultivate connection to nature and sense of place,

Most people who share a love of nature have been taught to see the landscape in a piecemeal way. They know how to identify plants, birds, amphibians, and fungi. They may even know quite a bit about the ecology of these organisms, but they have not learned to see nature in a larger context. It is wonderful to know nature through one-on-one encounters with other organisms, but it is perhaps more empowering to gain a fuller understanding of the patterns that have shaped its landscapes. Through some knowledge of history and the broader view of seeing a forest and not just its trees, we begin to see the forces that shape a place. This new way of seeing creates reverence, respect, a sense of inclusion,
and accountability. Reading the landscape is not just about identifying landscape patterns; more importantly, it is an interactive narrative that involves humans and nature. For those interested in enhancing their sense of place, I know of no better way than by becoming intimately acquainted with their local forests and the fascinating stories they tell.

(Wessels, 1997, p. 21)

Landscapes are imbued with stories, from the “fascinating” ecological stories that our forests tell about disturbance and ecosystem function to the rich, complex narratives that encompass people’s relationship with land and place.

At the end of her essay “Restoring the Imagination of Place: Narrative Reinhabitation in the Po Valley”, Serenella Iovino imagines a future in which “all citizens—human and nonhuman—will be storytellers”, and this project is inspired by a place-based ethic that values storytelling as means of (or a way of learning) “living-in-place,” what Iovino calls “narrative reinhabitation.” Place-based stories are a powerful, integrative tool for understanding a place's ecology on all levels – cultural and biological – illuminating values and responsibilities, and creating the space to envision change in the form of new narrative endings (Iovino, 2012, p. 106-7).

Alessandro Portelli, a prolific oral historian famous for his Italian oral history projects and decades-long study of Harlan County, Kentucky, calls oral history “history-telling: a cousin of storytelling, but distinct from it because of its broader narrative range and dialogic formation” (Portelli 1997, p. 6). With a focus on personal experiences and points of view, it generates “thick” long form narrative, and, as Portelli generously points out, “In theory (and in practice), oral history can be about anything; open-endedness at all levels is one of its distinctive formal characteristics” (Portelli 1997, p. 6). Oral histories reveal important information about landscapes and the values associated with them. They
have produced site-specific knowledge about biodiversity, natural communities, hydrology, and land use change, at the same time as they facilitate public participation and illustrate how “new, interdisciplinary environmental science” can be generated by bringing together local and scientific perspectives (Holmes and Pilkington, 2011; Colburn and Clay, 2007; Robertson and McGee, 2003). Oral history as a method encompasses—even embraces—complexity, making it an appropriate method for understanding meaning, values, and relationships, as well as ecosystems. Leavy (2011, p. 15) underscores how oral history offers qualitative researchers opportunities to generate depth, breadth, and holistic understandings, examine processes, consider agency, and incorporate context.

The University of Vermont's PLACE (Place-based Landscape Analysis and Community Engagement) was founded as a collaboration with Shelburne Farms. It has its roots in the University of Vermont’s Field Naturalist/Ecological Planning program, and, using landscape analysis, engages communities in exploring “the unfolding story” of the relationship between people and place. PLACE's mission is to “promote a sustainable relationship between communities and their local landscapes by engaging residents in exploring, understanding, honoring, and celebrating the natural and cultural features that contribute to their town's character” (Poleman, 2010, p. 21). With its foundation in landscape analysis, PLACE's strength lies in examining the physical and ecological landscapes, and has not yet developed a comprehensive framework or a toolkit of methodologies and best practices for an inclusive exploration of the cultural landscape (Morra, 2013) or integrating local knowledge (Poleman, 2010, p. 145). While PLACE includes among its principles a commitment to “tell the whole story of a place”, honor a
diversity of perspectives (including native peoples, minorities, and women), and “lead with values” (Poleman, 2010, p. 214), graduate students have indicated that PLACE tends to repeat the stories of the dominant culture and under-represent and overlook marginalized perspectives (Poleman, 2010, p. 108).

The importance of storytelling in land conservation, management, and analysis has been stressed throughout my Field Naturalist/Ecological Planning classes as a means of connecting people to place and inspiring action (Conservation, Systems & Sustainability; Place-Based Landscape Analysis; Field Naturalist Practicum).

Practitioners emphasize to students how crucial storytelling is in communication and relationship building with stakeholders and community members. Students are encouraged to employ storytelling strategies in order to build community-based relationships and understand and communicate about nature, natural communities, and parcels of land, but no distinct methodology or discipline has emerged to support students in this endeavor. In conducting landscape analyses for service-learning projects and classes, I realized that listening to people (unconsciously using an oral history approach) who had a connection to the land uncovered useful information about land use history, practices, and management, as well as revealing compelling, complex stories about social context and relationship with place.

For a spring 2012 Place-Based Landscape Analysis class, historian and basket maker Judy Dow took me and fellow PLACE student Connor Stedman on a tour of French-Abenaki Burlington, starting at the cemetery on Prospect Street overlooking the intervale, offering us an Abenaki perspective on its history and land use. She told us stories that brought with them a new understanding of the Burlington Intervale, rich with
complexity and conflict. She told us about the Abair (Abare) House, owned in the 19th century by Dr. John Pomeroy, a founder of the University of Vermont Medical School. Dr. Pomeroy’s son operated a poorhouse at the Abair House, where poor and French-Abenaki patients labored to release their medical debts. The Abair House was condemned by the City of Burlington and demolished in the 2000s, although Judy Dow pointed out its historical significance and advocated for its preservation (Judy Dow, personal communication, April 2012; Dann, in Lawrence, 1996). She showed us the beams of the Abair House, still lying in the woods alongside the Intervale Road.

For a spring 2013 Wildlife Ecology and Management class, I interviewed farmers and trappers around the Fitzgerald Farm, on the Colchester side of the intervale, in order to understand the impacts of local wildlife – particularly beaver – on the land and farms. These conversations produced helpful information for our management recommendations, including: beaver (and other wildlife) abundance and history in the area, beaver and drainage ditch management history, beaver dam locations, hydrology and flooding patterns, dam-related drainage problems, land ownership, and the relationships amongst neighboring farmers. These stories were multi-layered and complex, taking up everything from site-specific descriptions to agricultural practices to land use change and conflicts.

Both of these projects focused on the lower Winooski intervale, which spans Burlington and Colchester along the Winooski River. For many in the Burlington area and beyond, the term “intervale” is synonymous with the Burlington Intervale (the “Intervale”), a unique urban-agricultural-wild tract of land commonly associated with the Intervale Center. The Burlington Intervale land is within Burlington city limits and
encompasses 700 acres of wetlands, agricultural fields, and narrow bands of riparian floodplain forest on the Burlington side of the Winooski River where it passes through the cities of Burlington, Colchester, and Winooski. However, the term “intervale” refers to a rich geographical concept, the floodplain river valleys in New England that the Native people called wolhanak and European settlers called “intervals”, or “intervals”, long valued for their agricultural productivity. For the purposes of this project, although I will use the term “intervale” to refer to a specific place (the intervale lands along the lower stretches of the Winooski River in Burlington and Colchester, Vermont), I choose not to capitalize the word in order to bring forward the geographic concept and historical context that this word carries, although these meanings are no longer in popular circulation.

The lower Winooski intervale is a special place in the heart of Burlington and Colchester, with a deep history of agriculture and human connection with place; now, with the impacts of climate change, it faces an uncertain future on the floodplain. With a long history of human use and unique and productive floodplain ecology, the intervale contains many layers of social and ecological stories, and offers a wonderful opportunity to explore possibilities for telling integrative stories about the cultural and ecological landscapes. Using the lower Winooski intervale as a case study, this project engaged diverse perspectives to explore the value of oral history as a methodology in landscape analysis, with an emphasis on place-based landscape analysis and UVM’s PLACE program. I was particularly interested in land use practices (including agriculture, foraging, and hunting), intervale communities and ecology, feelings and values about the land, and visions for its future.
Prior to beginning interviews and establishing the purpose of this research project, I had conducted significant background research into intervale ecology, landscape change and river movement, cultural context, and history, in large part for the service-learning landscape analysis and field ecology classes mentioned above. This research and my own personal interest led to many, many informal conversations and interviews, over the course of two years, with people familiar with the history and ecology of the intervale. I also attended or viewed lectures by Abenaki historian and author Fred Wiseman; UVM archeologist John Crock; Abenaki historian and basketmaker Judy Dow, and foragers and historians Phil Brett and Mike Ather (Gardening and Gathering like the First People of the Northeast). Over the course of two years, I spent a great deal of time in the lower Winooski intervale, walking in the Burlington Intervale and Winooski Valley Park District properties, and canoeing on the Winooski River between Salmon Hole and the mouth of the river, as well as on the Mississquoi River. During the summer of 2013, I worked at Arethusa Farm in the Burlington Intervale, where I also keep bees.

During the fall of 2013, I conducted ten in-depth oral history interviews with people closely connected to the lower Winooski intervale. Many of the narrators were interviewed multiple times, and some interviews were recorded while walking through the intervale. Oral histories produced a rich suite of information – both qualitative and quantitative – about the cultural and ecological landscapes with implications for various landscape analysis approaches. The potential for oral history methods is particularly salient for place-based outreach and education programs like PLACE that seek to integrate sense of place, storytelling, and visions and values into understandings and expressions of place. Themes and values surfaced through these interviews that reveal
relationships with place in the intervale, and results indicate how stories and storytelling can be used to tell an integrative story of the cultural and ecological aspects of places as well as how people interact with them. From the oral history interviews collected as a part of this project, short audio stories were produced and embedded in an interactive, web-based “sound map” as a way to distill and share place-based stories.
Literature Review

Landscape Analysis

Human history, as geography, historical ecology, and environmental history remind us, plays out in place. Akin to natural history and geography, landscape analysis emphasizes the links between the natural communities that appear as patterns on the surface of the earth— including human communities—and the physiographic context in which they arise. There are many popular “reading the landscape” books that draw from landscape analysis to present engaging narratives about landscape ecology and history to a lay audience. Ecologist May Watts’ Reading the Landscape (1975) offers a collection of short landscape-based natural history stories that highlight the relationship between ecology, history, and culture, often with personal anecdotes and storytelling. William Cronon's environmental history Changes in the Land: Indians, colonists, and the ecology of New England (2003) combines historical and ecological research to illustrate how Indians and colonists— and their concepts of property ownership and enclosure— impacted New England's ecosystems. In his book Reading the Forested Landscape (1997), ecologist Tom Wessels presents landscape analysis for the lay audience as a sort of detective story synthesizing history and ecology: close observations of the landscape's natural history and features leads to an integrative understanding of its ecological and human pieces, patterns and processes. Wessels and Cronon teach their students to read landscapes for the “rich natural, cultural, and historical information they contain” (Cronon, 2014). Reading the landscape offers an engaging approach to understanding
ecology and ecosystems, as well as the impacts of human land use, with the hope that this understanding and analysis will inspire a more considered land use ethic in the future.

For ecologists, historians, and writers interested in the relationship between people and the land, landscape analysis takes the form of place-based natural history essays, research, and stories, often interspersed with descriptive images, that highlight the intrinsic connections between people and ecosystems. Vermont has been the subject of many books that utilize landscape analysis and reading the landscape approaches to tell an integrated story of her natural and cultural history. Jan Albers' landscape history *Hands on the Land* (2000) highlights change over time, “how human cultures take physical form on the land”, with geology, biology and climate as “major characters” (Albers, 2000, p. 14). In *The Nature of Vermont: Introduction and Guide to a New England Environment* (1998), Charles Johnson introduces Vermont's deep time history—geology and physiographic context, and Native American inhabitation—and then describes the natural communities, waters and wetlands, and human communities that are distributed on the landscape.

Other books take a “pieces, patterns, and processes” approach. Zadock Thompson's *A Natural History of Vermont* (1853) is a comprehensive treatment of Vermont's plant and animal species, with chapters on her physiographic regions and features. Elizabeth Thompson and Eric Sorenson's *Wetland, Woodland, Wildland: A guide to the natural communities of Vermont* (2000) is an indispensable resource for students, ecologists and land managers, defining Vermont's natural communities and their patterns of distribution on the landscape, with an emphasis on the underlying influences of climate, bedrock and surficial geology. Both Albers and Thompson and Sorenson
articulate the hope that these expressions of landscape will help readers (and society) to understand the intricate connections between human and natural communities, in order to make wise decisions about land use moving into the future.

As the works described above indicate, landscape analysis bridges multiple disciplines, including geography, landscape architecture and planning, ecology, history, and environmental studies, with varying emphasis on the physical, ecological, and cultural aspects of landscapes. It is utilized to understand landscape patterns and processes (structure and function) on a variety of scales and from a variety of perspectives, incorporating information about human use, spatial patterns, and ecological processes. Landscape analyses may take the form of place-based or natural history essays, planning and management reports and designs, suites of maps, and academic papers. Methods rely on historical research, ecological inventories, mapping, natural history, and descriptive (and integrative) writing and image selection. It is closely aligned with geography in its interest in the “spatial arrangement of human phenomena”, and with landscape ecology, which deals with “the spatial variation in the landscape and its impact on ecological processes” (Poleman, 2011, p. 1).

Geographers tend to emphasize the social and cultural aspects of landscapes, while ecologists focus on physical and biological features. In his landmark 1925 essay “The Morphology of Landscape”, geographer Carl Sauer argues for a more inclusive geography, one that addresses the “dualism of landscape” by integrating natural and cultural features in landscape analyses. He acknowledges that understanding of landscapes comes on many different levels and from the perspective of different disciplines. A geomorphologists' analysis, for example, will “tie the present physical
landscape back into its geologic origins, and to derive from it therefrom step by step” (Sauer, 1925, p. 36). The natural landscape “becomes known through the totality of its forms” – climate, topography, hydrology and drainage, mineral sources, soils, vegetation, etc. – and their relation to one another, with climate a determining factor. “Behind the forms lie time and cause,” Sauer writes, leading towards a “concept of the natural landscape which in turn leads to the cultural landscape” (Sauer, 1925, p. 36). In his essay “Axioms for Reading the Landscape”, geographer Pierce Lewis asserts that the basic principle of landscape analysis is “...that all human landscape has cultural meaning, no matter how ordinary that landscape may be...Our human landscape is our unwitting autobiography, reflecting our tastes, our values, our aspirations, and even our fears, in tangible, visible form” (Lewis, 1979, p. 12).

The University of Vermont's Field Naturalist graduate program stresses an “integrated, field science” approach to landscape analysis, more closely aligned with ecology than geography, drawing from a range of field methods and disciplines including botany, geology, soil science, wildlife biology, archeology, and historic preservation (Poleman, 2011). The Field Naturalist Program (now the Field Naturalist & Ecological Planning Program, FNEP) was founded to educate conservation practitioners in the fundamentals of ecology, and stresses the importance of communication as well as sound science to support education and decision-making around land use. It trains students to use landscape analysis and ecological evaluations, primarily to fulfill land management and conservation goals.

Firmly anchored in ecology and natural history, field methods include soil pits, vegetation and wildlife surveys, and observations of topography, aspect, slope,
microclimates, and special features. Field methods are supplemented by historical research and review of documents, maps, and aerial photography, which often reveal land use changes or disturbance. Understanding local and regional biophysical and ecological context is at the core of a Field Naturalist landscape analysis, often presented in the form of reports and maps; cultural context is not emphasized, although a history of human land use patterns is often provided. Natural history stories offer insight into the relationships between the physical and ecological landscape and how they interact.

The Field Naturalist Program emphasizes a 'layer cake' and 'pieces, patterns, and processes' approach to understanding the “dynamic forces that shape and drive natural ecosystems” (UVM Field Naturalist Program, 2013). The “pieces, patterns, and processes” landscape analysis framework encompasses inventorying physical and biotic landscape features (pieces) and understanding their patterns of distribution on the landscape, as well as the underlying processes driving those patterns (Poleman, 2011, p. 7). Bell (1999) describes the patterns and processes at work in landscapes, with an emphasis on change over time,

The processes at work in the world produce landscape where everything is in a constantly dynamic state. The competition for resources, the interaction of organisms with each other and with inorganic, physical processes, the cycles of carbon, nitrogen and water, together with a wide range of weathering and erosion activities, combine to drive the engine of the biosphere fuelled by the energy of the sun and of nuclear reactions deep in the earth. Out of this endlessly shifting cycle of growth and decay, a myriad of patterns is apparent, evolving at various rates into an uncertain future. Humans are part of this world and contribute to the patterns and processes to varying degrees.

(Bell, p. 14)
The “pieces, patterns, and processes” landscape analysis framework is embedded in the layer cake approach, with its focus on the physiographic processes (geology, soils, and climate) that drive the patterning of natural (and human) communities on the landscape.

While the layer cake approach attempts to address the interaction between nature and culture, there is a decided focus on the biophysical, rather than the social. It is based on the landscape analysis approach of Scottish landscape architect Ian McHarg, founder of the renowned landscape architecture program at the University of Pennsylvania. In his essay “An Ecological Method for Landscape Architects” (1967), McHarg offers a comprehensive description of and justification for this method, founded on the principle that “the place, the plants, animals, and men upon it are only comprehensible in terms of physical and biological evolution.” (McHarg 1967, in Swaffield 2002, pp. 39).

Understanding all the physical, biological, and cultural history lying “mute” in landscapes is “prerequisite for intelligent intervention and adaptation” on the land. The ecological method for landscape architects begins “at the beginning”, with geology, which explains the landscape's present form. Climate provides the context for the physiography, and then the water regime is explored. The layer cake concludes with soil, vegetation, and wildlife communities, acknowledging the interconnections between the landscape layers,

Knowing the foregoing and the prior history of plant evolution, we can now comprehend the nature and pattern of soils. As plants are highly selective to environmental factors, by identifying physiographic, climatic zones and soils, we can perceive order and predictability in the distribution of constituent plant communities. Animals are fundamentally plant related so that given the preceding information, with the addition of the stage of success of the plant communities and their age, it is possible both to understand and to predict the species, abundance or scarcity of wild animal populations...The information so acquired is a gross
ecological inventory and contains the data bank for future investigations. The next task is the interpretation of these data to analyze existing and propose future human land use management...


Ecological inventories of landscape “pieces” such as plant and animal species, hydrologic features, and soil types are a key component of the layer cake method; indeed, McHarg called his method “the ecological inventory”. His students later came to call it the “layer cake”, or the “litany” (Spirn 2000, p. 107).

In his 1969 book *Design with Nature*, McHarg promotes the idea of “ecological planning”, describing in detail the method and application of the “layer cake” landscape analysis utilized in a series of land use planning projects conducted with graduate students at the University of Pennsylvania, culminating in the comprehensive Potomac River Basin project. Maps were produced to represent the physiography (geology, soils, hydrology, slope, mineral resources) limiting land uses, as well other values (plant communities, wildlife habitat, recreation and agricultural suitability) embedded in the landscape; these maps were then overlaid as transparencies to reveal the “intrinsic suitability” of land for various purposes and values (McHarg, 1969).

For land use planners and decision-makers, the layer cake landscape approach offers an organized framework for understanding the pieces, patterns, and processes that comprise (and drive) landscapes. However, as McHarg points out, the layer cake is an exercise in data collection, not a plan, “No: this exercise seeks only to reveal nature as a working storehouse, with implications for land use and management. This information is an indispensable ingredient to a plan, but is not the plan itself” (McHarg, 1969, p. 120). The plan, as a “determination to achieve certain social goals” (McHarg, 1969, p. 120), is
based on social values and processes, and requires analysis, interpretation, and synthesis. While field methods and presentation for physical and biological information about landscapes are well-documented, methods for integrating the social aspects of landscapes – beyond including a brief human history of land use – are not well defined in the Field Naturalist approach to landscape analysis.

Figure 1: Layer-cake model, adapted from Ian McHarg and drawn by Mookesh Patel (Steiner 2008, p. 15)

Place-based Landscape Analysis

Place-based landscape analysis approaches attempt to integrate the story of the social and cultural aspects of landscape with its biophysical attributes, nested in the concept of place as a cultural as well as a geographical location, with deep meanings to people. With its roots in the Field Naturalist program and a partnership with Shelburne Farms, UVM’s PLACE (Place-based Landscape Analysis and Community Engagement) program draws on landscape analysis and systems thinking to connect local communities
to their local places and nurture “sense of place”. In order to accomplish this goal, PLACE expands on the FNEP approach to landscape analysis, which emphasizes ecology, and draws from social science disciplines like geography and environmental history. While the cultural landscape is a main focal area of the PLACE program, methods to explore it are not well defined (Morra, 2013); in his reflection on his experience with the PLACE program, Ryan Morra suggests incorporating approaches and mentors drawn from disciplines like anthropology, history, and geography to guide students in exploring social science methods, including ethnography and oral history (Morra, 2013).

As program director Walter Poleman describes it, the mission of PLACE is “to apply landscape analysis and whole systems thinking to fostering a sense of place and a sustainable future in local communities” (Poleman, 2011). The program emphasizes an integrative, interdisciplinary analysis, “exploring the relationships that exist in the landscape-community system, deepening these relationships where possible, and reintegrating people and the land in meaningful ways” (Poleman, 2010). PLACE engages graduate students (many from the FNEP program) to work with local communities on place-based landscape analysis projects on the “townscape” level, with a goal of integrating natural and cultural history and engaging communities in a deep, multi-faceted “celebration of place”. Past PLACE projects have included partnering with the town of Adjuntas in Puerto Rico to establish a PLACE program (Morra, 2013), engaging community members to track phenology in Shelburne (Kolan, 2005), and working with the South Burlington School District to develop a place-based education program (O'Connor, 2011). PLACE’s landscape analyses are typically shared through
narratives and images on websites, as well as through workshops, field walks, and public presentations.

The PLACE approach utilizes a number of conceptual and analytical frameworks to guide participants in understanding and analyzing the suite of complex, interacting forces that comprise and drive landscapes. PLACE divides landscape analysis into three “focal areas”: the physical landscape (geology, soils, topography, climate, hydrology), the cultural landscape (human history and land use), and the ecological landscape (phenology, aquatic, plant and wildlife communities) (PLACE 2014). This approach allows participants to organize their research, as well as to draw out the connections.
between the physical, ecological, and cultural landscapes (Poleman, 2011, p. 2). In addition to the three landscape “focal areas”, PLACE employs three conceptual frameworks in its landscape analyses, in deference to its roots in the Field Naturalist program: the layer cake, “pieces, patterns and processes”, and the dynamic timeline. The dynamic timeline, well expressed in the layer cake approach, recognizes that landscape history operates at different timescales, reaching into deep, deep time with bedrock geology, thousands of years for glacial history and soil formation, as well as addressing the current distribution of plant, animal, and human communities. The dynamic timeline framework emphasizes landscape change over time at various scales, and recognizes that looking to landscape history can help inform future relationships with landscapes (Poleman, 2011, p. 3).

At its best, the “layer cake” method of reading the landscape provides an organized framework for telling integrative stories about the relationship between landscape layers, and part of PLACE’s “quest” is to “discover, distill, and communicate integrative nuggets” (Poleman, 2011, p. 8) that show how nature and culture entwine in place. Walter Poleman gives the example of a brick, formed from clay deposited in the glacial Lake Vermont, utilized to build old farmhouses and mill buildings. Landscape stories like these are central to communicating about the “unfolding story” of the landscape in engaging ways (Poleman, 2011, p. 10). As Ryan Morra points out, PLACE is about “connecting community to their place...a distinct endeavor separate from doing history, geography, or ecology”, and storytelling functions as a means to illuminate and express these connections (Morra, 2013, p. 13).
The PLACE program’s guiding principles are as expansive as its mission and vision. Some of these principles are: to start in place, reestablish relevance, engage the senses, commit to curiosity, emphasize relationship, lead with values, ensure diversity, promote collaboration, and make time for reflection. Ideas for applying these principles include storytelling, seeking out more and diverse sources of local knowledge (including recent landscape stories, histories of people who are often overlooked, and traditional place-based knowledge from indigenous sources), thinking in watersheds, and deepening relational trust (Poleman, 2010, p. 205). Graduate students asked to evaluate PLACE highlighted four program weaknesses: not enough incorporation of local knowledge, tenuous funding and programming expertise, an emphasis on the historic rather than present day landscape, and the lack of a detailed methodology for conducting place-based landscape analyses (Poleman, 2010, p. 146).

Based at Hawthorne Valley Farm, a biodynamic farm community in the Hudson Valley, the Farmscape Ecology Program [FEP] also focuses on the relationship between people and the land, exploring land use and ecology in Columbia County, NY, with a focus on its agricultural landscapes. “Farmscape ecology” refers to the “patterning of [human and non-human] life on our landscape, and the interactions resulting from that pattern…and includes those aspects of human ecology that relate to our use of the land and the growing of food upon it” (Farmscape Ecology Program, 2010). FEP conducts comprehensive ecological surveys to understand biodiversity in agricultural landscapes, as well as evaluating natural communities and how they interact with agricultural lands (eg, Farmscape Ecology Program, “Soil as Habitat for History”, “Roxbury Farm Biodiversity: Conservation and Agroecological Considerations”, 2008; “The Dancer’s
The Farmscape Ecology Program is run by a wildlife ecologist, a botanist, and a social scientist, and it employs participatory research as an outreach tool. The field and historical research methods FEP uses are similar to the FNEP and PLACE programs, although FEP directs significant resources towards social and cultural analysis, and employs a social scientist. Current projects include the Living Land Atlas, which will produce two guides to understanding the landscape and human relationships with it, “The
Field Guide to Ecological Habitats of Columbia County” and “The Atlas to Land Perceptions in Columbia County”:

…[looking] at the County’s nature from the perspective of both the ecology (Which critters live where? How do our forests and fields vary from the low banks of the Hudson River to the heights of the Taconics?) and the people (What does nature and land mean for different people?) What limits our ability to interact with the landscape in the ways we would like?)

(Farmscape Ecology Program, 2013)

FEP uses the information and analysis it generates to inform dialogue, planning, conservation, and visioning for the future. Like the PLACE program, FEP draws on the conceptual and emotional framework “sense of place” evokes, as well as producing integrative landscape analyses, “By exploring ecology, agriculture, and sociology simultaneously, we hope both to provide a more holistic image of the landscape and to attract a broader diversity of people to its exploration. Central to building this appreciation of [Columbia] County [NY] is knowing the County and developing a love for it” (Farmscape Ecology Program, 2010). In the FEP model, listening leads to knowledge, which in turn builds to compassion and understanding, nurturing stewardship and conservation of agricultural ecosystems and natural areas in Columbia County.
Place as Concept

The concept of place has various meanings and implications in different disciplines, from art to architecture, ecology, geography, archeology, folklore, literature, and philosophy. Physical and cognitive interactions with and meanings of space, and the distinction between place and space, are subjects of substantial inquiry and dense discussion among philosophers, including Maurice Merleau-Ponty, *Phenomenology of Perception* (1945); Edward Casey, *The Fate of Place: A Philosophical History* (1998) and *Getting Back Into Place: Toward a Renewed Understanding of the Place-world* (1993); Michel de Certeau, *The Practice of Everyday Life* (1980); Henri Lefebvre, *The Production of Space* (1974) and *Rhythmanalysis: Space, Time, and Everyday Life* (1992); and Gaston Bachelard, *The Poetics of Space* (1958). Geographers such as Yi-Fu Tuan (*Topophilia: a study of environmental perception, attitudes, and values*, 1972; *Space and Place: the perspective of experience*, 1977), Ted Relph (*Place and Placelessness*, 1976) and Robert Sack (*Place, Modernity, and the Consumer's World: A Relational Framework for Geographical Analysis*, 1992) have focused on understanding “place” (and placelessness), its social and cultural significance, and its multivariate meanings to people. While place can be abstract, it is generally defined among geographers as a “physical space imbued with meaning” (Cheng, 2003, p. 89). According to Yi-Fu Tuan, personal experiences and values are at the core of place-making, “What begins as undifferentiated space becomes place as we get to know it better and endow it with value” (Tuan, 1974, p. 6).

Places are deeply important to people, endowed with meanings, values, moral instruction, cultural beliefs, and spiritual significance. They inform who we are, absorb
meaning and memory, and reflect values, along with their biophysical attributes. Place is integral to identity, the “fundamental means by which we make sense of the world and through which we act” (Sack, 1992, p. 1), summed up in Wendell Berry's famous quote, “If you don't know where you are, you don't know who you are.” (quoted in Stegner, 1989). To know one's place is to know oneself, and to act right, a central theme in *Wisdom Sits in Places*, Keith Basso's seminal ethnography of Western Apache place-worlds,

For Indian mean and women, the past lies embedded in features of the earth—in canyons and lakes, mountains and arroyos, rocks and vacant fields—which together endow their lands with multiple forms of significance that reach into their lives and shape the way they think. Knowledge of places is therefore closely linked to knowledge of the self, to grasping one's position in the larger scheme of things, including one's own community, and to securing a confident sense of who one is as a person.

(Basso, 1996, p. 34)

*Wisdom Sits in Places* is often referenced (Silko, Bruchac, Abrams, among many others) for its deep exploration of what has come to be called sense of place, “one of the most basic dimensions of human experience—that close companion of the heart and mind, often subdued yet potentially overwhelming...” (Basso 1996, p. 106).

**Sense of Place**

Sense of place is a complex and somewhat amorphous concept, most simply described as attachment or a feeling of belonging to a certain geographic setting. It implies uniqueness and character, as well as a special identity, incorporating ideas and feelings (from the aesthetic to the spiritual) about the land/landscape itself, how people inhabit it, and the stories and myths, past and present, that it contains. Geographer Yi-Fu
Tuan coined the word topophilia to describe the “affective bond between people and a place” (Tuan, 1974, p. 4), and wrote a book about it. Relph asserts that sense of place is highly individual, perceptual, and subjective, “...sense of place lies primarily inside us (but it aroused by the landscapes we encounter)...a synaesthetic faculty that combines sight, hearing, smell, movement, touch, imagination, purpose, and anticipation...” (Relph, 2009). Keith Basso calls sense of place “a variety of experience...[that] has accrued—and never stops accruing—from lives spent sensing places” (Basso 1996, p. 144).

In *Pinelands Folklife*, an exploration of folklife and place in the New Jersey Pine Barrens, Mary Hufford argues that “sense of place literally begins with the senses”,

...with an ability to make sense of the environment, not only to tell what is there, but to understand the relationships between environmental elements. Outdoorsmen working in what we might call the endemic folklife habitats of the Pinelands may or may not express ecological relationships in scientific terms, but they know what the place looks, sounds, tastes, smells and feels like at different times of the day and in different seasons.

(Hufford, 1987, p. 16)

Hufford goes on to describe the intimacy of the place-based human-environment experience that yields “eloquent interpretations of the environment” like material culture, stories, art, and local names for flora that reflect physiography, local character, and the “personalities of their makers and users” (Hufford, 1987, p. 30). Geographer Kent Ryden describes Hufford's research in *Mapping the Invisible Landscape: Folklore, Writing, and Sense of Place*,

First, local lore, especially material folklore, reveals the depth and intricacy of local knowledge of the nature and physical properties and limitations of the geographical milieu. The traditional ways in which people use the materials which surround them, and the tools which they have developed to manipulate those materials most effectively, demonstrate a deeply lived
familiarity with the nature and properties of the hard physical stuff of geography. The sensually descriptive folk names which people attach to the flora, fauna, and topographical features of a place provide a similar view of the local knowledge and interpretation of the physical components of that place, as do a few types of place-based narrative—like local legends and tall tales—which rely for much of their meaning on the nature of their physical setting. Such lore goes beyond cartographic symbols to get its hands dirty among the things that the symbols represent: it gets out of the tourist's car and walks around, picking things up, smelling and tasting them.

(Ryden, 1993, p. 62)

Along with the material lore, Ryden points to other elements that encompass and express sense of place: an understanding of its history (often stretching back into deep time), a strong sense of personal and group identity, and the emotions people attach to place.

**Sense of place and natural resource management**

Place operates at the intersection of biophysical attributes, social and political processes, and social and cultural meanings (Cheng, 2003), and understanding sense of place has significant implications for natural resource management (Williams and Stewart, 1998; Cheng, 2003; Davenport and Anderson, 2005; Farnum and Kruger, 2008, eg). Much of the research in the field of natural resources has focused on meanings and values among wildland recreators (Cheng, 2003; Davenport and Anderson, 2005), although the literature on sense of place and related concepts in natural resource management is expanding (Williams and Stewart, 1998; Cheng, 2003). In their USDA Forest Service report “Place-Based Planning: Innovations and Applications from Four Western Forests”, Farnum and Kruger present four case studies of “place-based planning” efforts in the Western US, acknowledging the paucity of practical guides for practitioners. They point out that place-based planning is an emergent method, distinguished from traditional zoning-based land management by taking a “more holistic
approach”, with a focus on identifying current uses, meanings, values, and experiences (Farnum and Kruger, 2008, p. 1), and note that the distinction between places and resources is essential in place-based planning.

![Figure 4: Schematic of place as the locus of forces affecting human action. Based on Canter (1977), Relph (1976), and Sack (1992). (Cheng, 2003)](Image)

Sense of place studies attempt to understand and articulate the place-based meanings and values at the core of people's relationships with the land. In their study of place meaning and perceptions of landscape change along the wild and scenic Niobrara River in Nebraska, Davenport and Anderson (2005) conduct interviews with residents to explore the “emotional bond between people and places” (p. 628), mapping out common themes, patterns and relationships in a “Web of River Meanings”. The “web of river meanings” yielded by Davenport and Andrews’ study reveals the spectrum of place-based
values, meanings, and identity at play in the Niobara River Valley, and contributes to an understanding of how sense of place influences perceptions and attitudes towards development and landscape change. They conclude that understanding place meanings and attendant emotions has significant implications for natural resource management, “extending our understanding of the human-environment relationship beyond the tangible and instrumental to include the symbolic and the emotional. In the context of natural resource management, the implications of this expanded notion are profound. Schroeder (1996) eloquently called this line of study ‘ecology of the heart’” (Davenport and Anderson, 2005, p. 629).

Cheng similarly argues for incorporating a “place perspective” emphasizing meanings and values into natural resource politics and decision-making, in order to foster
a “more equitable, democratic participation in natural resource politics by including a broader range of voices and values” (Cheng, 2003, p. 89). Addressing and understanding sense of place can help to bridge the gap between ecosystem science and management, opening possibilities for building consensus around natural resources decisions, “because it readily leads to a discussion of desired future conditions of a resource in both ecological and human terms” (Williams and Stewart, 1998, p. 23). Williams and Stewart offer guidelines for applying sense of place in ecosystem management, acknowledging that many will be common sense to “good people-persons”, including knowing and using local place names and paying attention to places with special but conflicting meanings to various groups.

Sense of place research draws on qualitative methods, although these methods are not established or well defined (deWit, 2003). In “Interviewing for Sense of Place”, geographer Cary deWit acknowledges that because sense of place is intangible, “it is difficult to study. It can be intimidating and overwhelming to measure something that cannot quite be measured, or even reliably defined” (de Wit, 2003, p. 139). In his study of sense of place in the High Plains, deWit employs a variety of open-ended qualitative interview methods, including semi- and unstructured interviews, spontaneous conversations, and group interviews, “going to the place in question and talking to people.” (deWit, 2003, p. 139), often opening interviews with small talk and biographical information. Writing was a key element of his organizational and interpretive process, which eventually yielded feedback loops of topics and themes. DeWit recommends that researchers take their time, follow the guidance of interviewees' interests and inclinations, and corroborate information with interviewees. In their study of Niobara River
meanings, Davenport and Anderson conducted open-ended interviews around three main themes: connections to the river, perceptions of river conditions and river management, and visions for the river's future (Davenport and Anderson, 2005, p. 630). Like deWit's process, data analysis was iterative and reflexive, and revealed strong sense of place, expressed through narrative, metaphor, emotional bonds and values.

**Place-based values and ways of knowing**

As Davenport and Anderson's web of river meanings indicates, a wide range of values are associated with places and sense of place, among them productivity, conservation and stewardship, wilderness and open space, aesthetics, spiritual sustenance, individual and community identity, economic security, natural resources, and personal satisfaction and fulfillment. These values are linked to how people perceive and interpret their environment, and form the foundation of people's relationships with place. Place-based values and ways of knowing are inextricably linked, and often overlap, expressed in traditional ecological knowledge (TEK), which Fikret Berkes defines as a “cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment” (Berkes, 2012, p. 7). TEK expresses cultural values, but is also a “dynamic way of knowing”, conveying a broader, more holistic view of ecology, and participating in the earth as a system of interconnected relationships. Setting the context for his discussions of traditional ecological knowledge in *Sacred Ecology*, Fikret Berkes points to land ethics, deep ecology, sense of place, bioregionalism, topophilia, and biophilia.
In his introduction to *The Biophilia Hypothesis*, Stephen Kellert, borrowing from *Moby Dick*, writes that his theme will be “our Siamese connection, our interdependency with a plurality of other mortals” (Kellert 1993, p.5). Interdependence is a key environmental value encompassing and embedded in a dizzying array of other place-based values and ways of knowing. It is at the core of the somewhat “new” science of ecology, founded on a long legacy of natural history, which focuses on the interactions—the *relationships*—between organisms and their environment.

Mary Evelyn Tucker and Brian Swimme draw inspiration from the possibilities of this “view of nested interdependence” to change our consciousness and values, and tackle the interconnected “global challenges of widespread environmental degradation, climate change, crippling poverty, social inequities, and restrained militarism” (Tucker and Swimme 2010, p. 410). Following Kellert, they point to the biological basis for our interconnectedness with other beings, how “personally we are woven into the fabric of life”, and the opportunities for healing and renewal,

Thus the integrated story of the origin and development of the universe, of Earth, and of humans could become an inspiring vision for our time. This is because the story gives us a sense of common evolutionary heritage and shared genetic lineage. This new understanding of kinship of humans with each other and with all life could establish the foundations for rediscovering our past and sustaining the future.

(Tucker and Swimme 2010, p. 416)

The value of interdependence underlies Aldo Leopold's “land ethic”, which “simply enlarges the boundary of community to include soils, water, plants, and animals, or collectively: the land” (Leopold 1968, p. 203). For conservationists such as Leopold, values of socio-ecological interdependence underlie values of land stewardship and
conservation. Western man [sic], so long a conqueror of nature, is reframed as a citizen of nature, another member of the ecological community, and metaphors of kinship and interconnectedness abound in descriptions of ecology: the “web of life”, ecological “communities”, Timothy Morton's “ecological mesh” (Morton, 2012).

Another value encompassed by interdependence is the “symbiosis” between humans and nature, articulated by André Dubos. He describes this value concept at length in *The Wooing of the Earth*, and in his essay “Symbiosis Between the Earth and Humankind”: “…human interventions into nature can be creative and can improve on nature, provided that they are based on ecological understanding of natural systems and of their potentialities for evolution as they are transformed into humanized landscapes” (Dubos 1996, 460). This value is echoed in the idea of “regenerative” landscapes and the ideas and design practices of Ian McHarg (*Design with Nature*, 1969) and landscape architect Richard Lyle (*Regenerative Design for Sustainable Development*, 1994). It draws on a legacy of indigenous land use practices like the fire management that created midwestern prairies (Dubos, 1980) and the parklike Northeastern forests European settlers encountered when they arrived in North America (Cronon, 2003).

In “Landscape, History, and the Pueblo Imagination”, Leslie Marmon Silko describes how the related values of interdependence and community are fundamental to the emergence and survival of the Pueblo people,

The human beings depended upon the aid and charity of the animals. Only through interdependence could the human beings survive. Families belonged to clans, and it was by clan that the human being joined with the animals and plant world...Not until they could find a viable relationship to the terrain, the landscape they found themselves in, could they emerge...

(Silko, 1979, p. 1012)
Stories like these, often drawn from indigenous and traditional ways of knowing, point to another value: the subject-hood of other beings (including non-animate beings) in the natural world. Like Tucker and Swimme, Thomas Berry points to the shared, “sacred” story of common descent in the universe, “Through this sharing in a common story, we come to recognize our total intimacy with the entire natural world. An impenetrable psychic barrier is removed. We are no longer alienated objects but communing subjects...” (Berry, 2010, p. 397). Describing the cultural practice of “listening” to the landscape among the Blackfeet, Donal Carbaugh points out how in the Blackfeet worldview, the natural world is “expressively active”,

People, animals, rocks and trees are actually co-present and co-participant with people as embodiments of the spirit(s) in the world. Attending to this "real" world is a key motive for "listening" and renders animals and trees and places generally as spirited speakers to – and thus as potentially hearable by – us all. This is something widely accessible, if only we listen appropriately.

(Carbaugh, 1999, 259)

In his essay advocating for a holistic, bioregional, watershed-based understanding of the land, Gary Snyder envisions a place-based “future culture” that requires only that people simply add to their existing faiths or philosophies “a sincere nod in the direction of the deep value of the natural world and the subject-hood of non-human beings.” (Snyder 2008, p. 234). For Snyder, bioregionalism and watershed consciousness is:

not just a means toward resolution of social and economic problems, but a move toward resolving both nature and society with the practice of a profound citizenship in both the natural and the social world. If the ground

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1In his book Evening Thoughts: Reflecting on Earth as a Sacred Community (2006, p. 17), Berry wrote the oft-quoted, “The universe is a communion of subjects, not a collection of objects.”
can be our common ground, we can begin to talk to each other (human and nonhuman) once again.

(Snyder, 2008, p.234)

Sense of place is a strong thread in bioregional theory, which “seeks to reverse our modern alienation from nature through the fostering of place-based knowledge and localized identities...” (Olsen, 2001, p. 433). Bioregional writers argue that connecting with sense of place is a critical component of restoring regional ecosystems and a “cultural land ethic” that “expands the borders of citizenship and views the land as a shared place for action, memory (as a form of biocultural conservation), and social evolution” (Iovino, 2012, p. 111). In her new home in the Po Valley in Italy, Iovino mourns how “place” has been traded for “space” in a formerly vibrant river corridor, now one of Europe's most polluted areas, “If sense of place is lost, it is because this place...makes no sense any more.” (Iovino 2012, p. 102). She draws on David Abram's notion of “ecology of mind” as she charts a literary path through “narrative reinhabitation” of her adopted home, using place-based stories as “moral instructions” for learning to live-in-place in disturbed, injured, and exploited places: “In the terms of our discourse, to understand the life of a place means to understand all levels of this place's ecology: the cultural as well as the biological. The ecological crisis of place is not limited therefore to its being 'disrupted and injured' in its organic balances. It is a crisis that involves a place's ecology of mind, namely, its imagination.” (Iovino, 2012, p. 105)

Understanding and sharing place-based stories activates another environmental value, an innate “ethical responsibility” to nature (Iovino, 2012, p. 106, 112). Storytelling becomes an instrument “to remember a disremembered unity” and restore the cultural and ecological imagination of place (Iovino, 2012, p. 106). Like Snyder, Iovino
imagines a bioregional future where “all citizens—human and nonhuman—will be storytellers...” (p. 112). In bioregional theory, as in place-based cultures, storytelling is a way of knowing and understanding the land: it activates sense of place, maintains the continuity of socio-ecological relationships, and guides ethical behavior and stewardship of the land.

Stories and other folk-life expressions ensure the continuity of local knowledge that is at the core of sense of place. In his essay “The Regional Motive”, Wendell Berry describes the “regionalism” that he adheres to,

…defined simply as local life aware of itself. It would tend to substitute for the myths and stereotypes of a region a particular knowledge of the life of the place one lives in and intends to continue to live in...The motive of such regionalism is the awareness that local life is intricately dependent, for its quality but also for its continuance, upon local knowledge.

(Berry, 1975, p. 67)

In the image of the “battered galvanized bucket”, hanging on a fencepost on the farm that was his grandfather's, soil and stories accumulate together in a powerful symbol of Berry's rooted regionalism,

However small a landmark the old bucket is, it is not trivial. It is one of the signs by which I know my country and myself. And to me it is insistently suggestive in the way it collects leaves and other woodland sheddings as they fall through time. It collects stories, too, as they fall through time. It is insistently metaphorical. It is doing in an active way what a human community must do actively and thoughtfully. A human community, too, must collect leaves and stories, and turn them to account. It must build soil, and build that memory of itself—in lore and story and song—that will be its culture. These two kinds of accumulation, of local soil and local culture, are intimately related.

(Berry, 2010, p. 154)
Berry's old bucket is a highly personal bioregional symbol, stewarding the key ingredients—soil and stories—for ecologically and socially sustainable communities.

**Place-based ways of knowing**

Place-based ways of knowing are intricately connected to values of interdependence, community, storytelling, and bioregionalism. David Abram opens *The Spell of the Sensuous* by declaring, “Humans are tuned for relationship” (Abram 1996, p. ix), and he argues that even in modern times we rely on our sensory perception for our experience and understanding of nature (and the nature of reality),

Direct sensuous reality, in all its more-than-human mystery, remains the sole solid touchstone for an experiential world now inundated with electronically-generated vistas and engineered pleasures; only in regular contact with the tangible ground and sky can we learn to orient and to navigate in the multiple dimensions that now claim us.

(Abram 1996, p. x)

Abram asserts, drawing from phenomenology, that it is through sensory perception that we approach our interdependency, “Far from restricting my access to things and to the world, the body is my very means of entering into relation with all things” (Abram 1996, p. 47).

Natural history and ecological ways of knowing are founded on direct perceptual observation, transmitted through story, and are, as Barry Lopez points out, “as old as the interaction of people with landscape” (quoted in Fleischner 2005, p. 10). In “Landscape and Imagination”, Scott Sanders describes how lessons in seeing, instilled by his parents, deepen his sense of (and pleasure in) the natural history of a place, adding new layers to his understanding of its story:
Merely finding out the name and history of a plant may deepen one's awareness of a place. For years I had admired the coppery grass that grows in knee-high tufts along Indiana's roadsides before I discovered that it is called little bluestem, a survivor from the prairies. Now I admire those luminous grasses with new pleasure, for I see them as visitors from a wild past.

(Sanders, 1989, p. 65)

For ecologists and natural historians, sensory perception plays out in methodical direct observation, and observations (and structured understandings) of the natural world were, at one time, key to survival, and are still genetically encoded as a part of our biophilia values (Kellert, 1993). Following Stephen Kellert, Thomas Fleischner writes that we are “wired for natural history”; human consciousness and observational skills developed in “natural history's forge...as we watched for danger and sought food” (Fleischner, 2001, p. 21). The natural history way of knowing depends on keen observation, identifies patterns, and categorizes knowledge, but is also deeply embedded in place. As Laura Sewell writes about natural historians,

They discriminate patterns in a single glance and sustain their attention for long periods of time. They hold images in mind while classifying and identifying, refreshing their mental image by repeatedly looking at whatever they see....Natural history requires focused attention on the distinctive patterns of flowers, birds, reptiles, social behavior, food webs, and habitats. Over time, these observations surely become a significant way of knowing the world, perhaps not unlike a violin player knowing strings, tones, and melodies. Natural historians thus find themselves embedded in a saturated world of other beings—squawking, thumping, buzzing, flitting about, and flirting. Consequently, they know a lot about where they stand, literally and figuratively. They know their places deeply and deliberately, and as a further consequence, they know what they value. They tell me that they love this earth and that joy comes easily.

(Sewell, 2011, p. 45)

This way of knowing, as biologist Bernd Heinrich so eloquently lays out in his books, leads into another, the curiosity that deepens our knowledge of the functioning of the
natural world and the organisms comprising it. In a typical passage, Heinrich describes how his curiosity is sparked by his observations,

Questions always jump out at me when I'm watching animals. Slowly I get drawn into the puzzles. I didn't plan to watch ants. But I couldn't help doing that as I was catching them outside the cabin to feed my ant-lion larvae. No doubt there is some sort of order to discover in an ant hill. But my casual glances at any mound, where I couldn't distinguish one ant from another and where I could watch one ant for only a few seconds at a time, seemed to suggest pure chaos. Then I saw something different. Ants were running back and forth in a wide swath along the glacier scours in the ledges next to the cabin. Those running north were red (Formica subintegra). They were carrying ant pupae, larvae, and black adults of a closely related species (Formica fusca group). Both were about the same size. One species was taking and carrying another out of a neighboring nest. Did the reds win a war, and were they now taking black slaves?

(Heinrich, 1991, p. 188)

Lengthy observations and continued questions untangle the puzzle; he'll watch and question and answer and watch, often over long periods of time, investigating the question through observation (in this case, opening the nest, to bites and stings), experiments (inducing a partial nest migration, timing the speed of individual ants, removing ants being carried to ensure they're not incapacitated), and gradually come to a conclusion (in the case of these ants, they were moving their nest; he suspects that it saves energy to carry the adults).

While visual observation predominates in the Western practice of natural history and in the perception of landscapes, listening is another mode of sensual perception that carries significant information about nature and place. In The Tuning of the World, Shafer talks about a landscape's keynote sounds, shaped by geography and climate, that affect behavior and lifestyle. He coins the word soundmark, akin to the landmark, a
“community sound which is unique or possesses qualities which make it specially regarded or noticed by the people in that community” (Shafer 1977, p. 10). Exploring the natural history of a Wisconsin lake in “Coming Ashore”, one of her essays in *Reading the Landscape*, May Watts describes how the sound of canoeing on a Wisconsin lake reveals its habitats,

How many times had my canoe slid to shore with that identical sequence of sounds! ...The canoe was sliding across lily pads with a silken sound.

But hardly had I realized the sound before it was succeeded by a different one. The bow was separating cattails with a subdued rustling, like that of a popcorn sack at the movies.

The cattail rasp seemed so inevitable after the silken sliding over the lily pads, so obviously one of a series of sounds, that I asked myself what had preceded the sliding.

Was it the dip and drip of the paddle in open water? Was the sequence, *drip, slide, rustle*?

No, there was something missing in that sequence. Something between the *drop* and the *slide*.

There was an interval filled with a sort of tangled dripping, the stretch between open water and waterlilies – that stretch where submerged pondweeds enmesh the paddle and change the clean drip to a muffled spatter.

The sequence was: *drip, spatter, slide, rustle*.

I pushed off again, and went to test this sequence at another landing place – and another. The darkness seemed to help me hear the changes in sound, as keel and paddle stirred the surface of the lonely lake. *Drip, spatter, slide, rustle*.

But the next day I went out to use eyes as well as ears on the situations that had shaped those sounds...

(Watts, 1975, p. 158)

In his essay “Waterfalls of Song: An Acoustemology of Place Resounding in Bosavi, Papua New Guinea”, Steven Feld argues the “potential of acoustic knowing, of sounding as a condition of and for knowing, of sonic presence and awareness as potent
shaping forces in how people make sense of experiences”, describing the rich sonic world of the Kaluli people in the tropical rainforest of Papua New Guinea, where “people hear much that they do not see” (Feld, 1996, p. 98). Among the Kaluli's multi-sensory experience of the forest, sound is a way of perceiving and understanding the environment,

One knows the time of day, season of the year, and placement in physical space through the sensual wraparound of sound in the forest. This way of hearing and sensing the world is internalized as bodily knowledge, part of the everyday “body hexis” (Bourdieu 1977: 87), the naturalized regime of “body techniques” (Mauss 1979 [1935]) basic to routine Kaluli encounters in their world.

(Feld, 1996, p. 100)

As “places are as potentially reverberant as they are reflective”, sound is central to “making sense, to knowing, to experiencing truth” – in short, to understanding and making place (Feld, 1996, p. 97).

Feelings of love and satisfaction for nature align with biophilia values (Kellert, 1993). The practice of natural history “often yields a fierce passion for the wild world”, feelings of love, wonder, awe, deep respect, and humility before nature (Fleischner, 2005, p. 12), and, as Bernd Heinrich points out in a passage brimming with sensory input, joy and fulfillment:

One day while I was by the brook catching trout, I heard a loud humming of insects above me in the gnarled spreading branches of an old willow tree. It was a beautiful warm spring day, and the sky was bright blue. The tree was covered with yellow pussy willows. Wooly black and rust colored bumble bees were buzzing here and there. Willow warblers and pied flycatchers were hawking flies. The combination of sights, smells, and sounds gave me a delicious, light-headed feeling. Many years later during my PhD oral exam at UVCA, I was asked why I wanted to study biology. I
answered that it was because of what I saw and felt that spring morning in
the Hahnheide...Although my methods of observing nature have become
more rigorous with my formal education, I do my research – my
observations of nature--because it makes me happy.

(Heinrich, 1991, p. 21)

The consciousness of interdependence and the ecological/natural history way of knowing
can also stimulate revelation, or a spiritual way of knowing, alluded to by Abrams in his
story of watching a spider spin a web,

I sat stunned and mesmerized before this ever-complexifying expanse of
living patterns upon patterns, my gaze drawn like a breath into one
converging group of lines, then breathed out into open space, then drawn
down into another convergence. The curtain of water had become utterly
silent—I tried at one point to hear it, but I could not. My senses were
entranced. I had the distinct impression that I was watching the universe
being born, galaxy upon galaxy...

(Abram, 1996, p. 19)

Landscapes are imbued with spiritual significance, acknowledged through cultural
acts. In her book about acequias, communally owned and governed irrigation systems in
New Mexico, Sylvia Rodriguez writes that folk Catholic holy sites are located at water
sources, and are honored by spiritual practices,

The pathways of irrigation and the pathways of procession overlap and
intertwine. Repeated acts of irrigation, like repeated processions, inscribe
the landscape with meaning and also inscribe the human body of the one
who participates in them. The irrigated landscape becomes the sacred
landscape through procession and prayer. Cooperative action and words
spoken in specific places produce local subjects and instruct them how to
live. In this moral economy, the principles of equity and need governing
the repartos also manifest in the normative value of respeto.

(Rodriguez, 2006, p. xxiv)

Recalling Basso's discussion of landscape stories in *Wisdom Sits in Places*, the sacred
water-bound acequia landscape and attendant site-specific religious rituals reinforce
moral behavior and harmonious relationships, among community members and “with the
divine power that controls life, nature, and death” (Rodriguez, 2006, p. 103). The
Blackfeet “listen” to sacred places “and to the sacredness in just about any place. As a
way of dwelling, the cultural form thus attunes to, and contributes to the creation of the
sacred” (Carbaugh, 1999, p. 259).

The concept of dwelling or living-in-place, addressed by Iovino, Silko, Carbaugh,
and Feld and Basso, “encompasses ways of fusing setting to situation, locality to life-
world” (Feld and Basso, 1996, p. 8), expressed most eloquently in place-based cultures
intimately connected – physically and spiritually – to local landscapes and places. In her
book *A Field Guide to Getting Lost*, Rebecca Solnit describes the profound living-in-
place among the Wintu people in Northern California,

…who don't use the words *left* and *right* to describe their own bodies but
use the cardinal directions. I was enraptured by this description of a
language and behind it a cultural imagination in which the self exists in
reference to the rest of the world, no you without mountains, without sun,
without sky. As Dorothy Lee wrote, “When the Wintu goes up the river,
the hills are to the west, the river to the east; and a mosquito bites him on
the west arm. When he returns, the hills are still to the west, but, when he
scratches his mosquito bite, he scratches his east arm.” In that language,
the self is never lost the way so many contemporary people who get lost in
the wild are lost, without knowing the directions, without tracking their
relationship not just to the trail but to the horizon and the light and the stars,
but such a speaker would be lost without a world to connect to, lost in the
modern limbos of subways and department stores. In Wintu, it's the world
that's stable, yourself that's contingent, that's nothing apart from its
surrounding.

(Solnit, 2006, 17)

Bodies are deeply embedded in the local landscape, and people orient themselves in the
world (figuratively and literally) in terms of relationship to place, founded, as Silko
asserts about the ancient Pueblo people, on a consciousness of interdependence, “standing deep in the natural world” (Silko, 2002, p. 1005).

This place-infused way of knowing is beautifully expressed in the traditional Australian Aboriginal view that people are inextricably linked to places from birth to death: actual conception occurs as a pregnant woman is on her daily gathering rounds, and is linked to a specific place. That place is “part of the Dreaming from whence his life comes—it is that place on earth where he most belongs, and his essence, his deepest self, is indistinguishable from that terrain” (Abrams, 1996, p. 167). Finally, “just as each Dreamtime Ancestor metamorphosed him-or-herself, at the end of her journey, into some aspect or feature within the contemporary landscape, so also each Aboriginal person intends, at the end of his or her life, to sing himself back into the land.” He returns “his conception site – to his particular stretch of the Ancenstral songline – ...so that his vitality will be able to rejoin the dreaming earth at that place” (Abrams, 1996, p. 168).

Indigenous perspectives point to storytelling—landscape as story—as a fundamental way of knowing the landscape, passing down knowledge through many generations, and affirming people's relationships with the land. Storytelling is “a primary form of human speaking, a mode of discourse that continually weds the human community to the land” (Abrams, 1996, p. 163). Scott Sanders writes that stories recall interdependence, “We all need vantage points for looking out at the land, and stories of place may provide them. They help us to recognize that we belong to the earth, blood and brain and bone, and that we are kin to other creatures” (Sanders, 1997, p. 122).
For Australian Aboriginal peoples, the land is story, revealed in song, an “auditory route map” of “songlines” traced across the landscape from “story place” to story place, “a sort of musical score that winds across the continent, the score of a vast, epic song whose verses tell of the Ancestor's many adventures, of how the various sites along her path came into being (and hence, indirectly, of what food plants, water sources, or sheltering rocks may be found at these sites)” (Abrams 1996, p. 166). As Abrams indicates in his discussion of songlines, and as Leslie Marmon Silko articulates in “Landscape, History, and the Pueblo Imagination”, the “landscape as story” way of knowing ensures the “continuity and accuracy of oral narratives...reinforced by the landscape” (Silko 2002, p. 1010; cf Strang, 2012) – a key mechanism for survival and transmission of critical knowledge in a harsh, arid landscape.

As Barry Lopez points out in “Landscape as Story”, stories can renew a sense of enthusiasm and purpose in life (and place), as well as generate intimacy. He goes on to describe the two landscapes of his perception, the interior and the exterior. The exterior landscape is that traced by the “layer cake”--

not only the line and color of the land and its shading at different times of day, but also its animals and plants in season, its weather, its geology, the record of its climate and evolution...One learns a landscape finally not by knowing the name or identity of everything in it, but by perceiving the relationships in it...The difference between the relationships and the elements is the same as that between written history and a catalog of events...The second landscape I think of is an interior one, a kind of projection within a person of a part of the exterior landscape...The interior landscape responds to the character and subtlety of an exterior landscape; the shape of an individual mind is affected by land as it is by genes.

(Lopez, 1988, p. 64)
Lopez's interior landscape creates story and meaning out of landscape, through painting, songs, recipes, rituals, names for things, names for places, and tools and technologies for working the land, “telling us the elements of the landscape and then telling us its story through folklife” (Hufford, 1987, p.14). Lopez concludes that stories ground people, psychologically and physically, in place, “Inherent in story is the power to reorder a state of psychological confusion through contact with the pervasive truth of those relationships we call “the land” (Lopez, 1988, p. 67).

Along with the accumulation of local knowledge, place-based values are encoded in stories embedded in the landscape, serving as reminders of interdependent relationships among the natural and human world and carrying invaluable natural and cultural knowledge. In *The Earth's Blanket: Traditional Teachings for Sustainable Living* (2007), Nancy Turner describes how stories transmit traditional ecological knowledge and wisdom, practices and techniques for sustainable resource use, and ethical and moral principles.

Each story has its own context, its own situation. Not only do narratives and conversation convey essential cultural knowledge and information, they reveal lessons and ethical approaches to relationships with other people and to the environment. They are a way to share culturally sanctioned rules and protocols that have helped some societies to exist and sustain themselves within their local environments for many generations.

(Turner, 2007, p. 3)

As the passages quoted from Iovino, Carbaugh, Silko, and Rodriguez indicate, and as Keith Basso discusses at length *Wisdom Sits in Places*, place-based stories and rituals offer moral instruction, codifying a normative set of socio-ecological behaviors. Stories as moral instruction is an overriding theme in Keith Basso's *Wisdom Sits in Places*. 
Basso relays comments of some of his informants that reveal the intimate relationship between people and the land and how stories are a moral touchstone,

The land is always stalking people. The land makes people live right. The land looks after us. The land looks after people (Annie Peaches, age 77, 1978)

The stories told to me were like arrows. Elsewhere, hearing that mountain's name, I see it. Its name is like a picture. Stories go to work on you like arrows. Stories make you live right. Stories make you replace yourself. (Benson Lewis, age 64, 1979)

(Basso, 1996, p. 38)

Basso explicates the somewhat obtuse metaphors of the land “stalking” people, stories going to work on them “like arrows”, and the sound of a place name as a picture,

As Nick Thompson says, historical tales "make you think about your life." After stories and storytellers have served this beneficial purpose, features of the physical landscape take over and perpetuate it. Mountains and arroyos step in symbolically for grandmothers and uncles. Just as the latter have "stalked" delinquent individuals in the past, so, too, particular locations continue to stalk them in the present...Geographical sites, together with the crisp mental pictures of them presented by their names, serve admirably in this capacity, inviting people to recall their earlier failings and encouraging them to resolve, once again, to avoid them in the future..."The land," Nich Thompson observes, "looks after us. The land keeps badness away."

(Basso, 1996, p. 60)

For the Apache, the land and the stories it encodes are physical reminders – “mnemonic pegs” – of the “moral teachings of their history” (Basso, 1996, p. 62), bearing moral instruction and paving the way for ethical behavior in social and ecological communities. Through oral traditions, landscape stories affirm cultural practices, and transmit history of the recent past as well as the deep-time events witnessed by ancestors.
Place-based stories serve as expressions of the connections between people and place, and are deeply entwined with how people know and understand their home landscapes. Stories about the past deepen and enlarge awareness of the present (Basso, 1996), and are a powerful mechanism for articulating the values that guide appropriate and moral conduct within the human and natural community. Storytelling, as an oral (and aural) and highly personal form of communication, is relational, highly subjective, and participatory, uniquely positioned to build and sustain the “intimacy with the natural processes, community and history” that is at the core of one's sense of place (Sanger, 1997, p. 4).
Oral History

Oral transmission and collection of history date back thousands of years and span cultures, from the African *griot* tradition to the Zhou dynasty to ancient Greece (Sharpless. 2007, p. 9; Ritchie, 1995, p. 1). The roots of oral history as an academic field are most often traced to Columbia University historian Allan Nevins, who founded the Columbia's oral history program in 1948, with the original goal of collecting histories of the recent past from prominent politicians and businessmen who were, by and large, elite, male and white (see Frisch, 1990, p. 8; Leavy, 2011, p. 3; Sharpless, 2007, p. 12, eg.). Nevins' work came on the heels of two significant oral history collection efforts: the US Army's oral histories of World War II, and the Works Progress Administration's Federal Writer's Project, which, in the spirit of democracy, collected and archived over 10,000 life histories from ordinary Americans (including nearly 2,500 interviews with former slaves) in the Library of Congress.

Initially, oral history was primarily the realm of folklorists, universities, and institutions like the presidential libraries, which produced massive oral history projects deposited in the National Archives starting in the 1960s. By the time the portable cassette recorder was invented in 1963, the spirit of the oral history movement was aligned with social history movements – the civil rights movement, Vietnam War protests, and feminism – and by the end of the 60s, oral's history's role in documenting the lives of ordinary people, or “giving voice to the voiceless” was firmly established (Sharpless, 2007, pp. 15-17).
As Donald Ritchie points out in *Doing Oral History*, oral history is a fluid and dynamic method, “…too creative a field to be entirely captured by one definition. For every rule, an exception has worked. Imaginative interviewers are constantly developing and sharing new methods and uses of oral history…” (Ritchie, 1). Definitions of oral history emphasize content (its focus on personal recollections of the past) and extent (long form, in depth interviews) (e.g., Oral History Association, 2013; Portelli, 1997; Ritchie 1995). In *The Historical Ecology Handbook: A Restorationist's Guide to Reference Ecosystems* (2001, pp. 102), Fogerty defines oral history as “a structured conversation between two people—an interviewer pursuing a carefully defined line of inquiry, and a narrator with information that the interviewer seeks to acquire.”

Sociologist Patricia Leavy characterizes oral history as “a method of qualitative interview that emphasizes participants' perspectives, and generally involves multiple open-ended interview sessions with each participant” (Leavy, 2011, p. 3). And the Vermont Folklife Center's Gregory Sharrow explains that oral history attempts to capture life experiences and knowledge through semi-structured and unstructured interviews, focusing on topics or themes rather than a rigid set of questions, and highlights to oral history’s capacity for eliciting stories about place, since so many of our memories—especially childhood memories--are place-based (Gregory Sharrow, personal communication, March 23, 2013). Oral history is characterized by its flexibility, “In theory (and in practice), oral history can be about anything; open-endedness at all levels is one of its distinctive formal characteristics” (Portelli, 1997, p. 6).
Oral history falls squarely within accepted qualitative practices, which tend to generate words and stories, rather than data and numbers. Jane Lewis and Jane Ritchie highlight the key elements of qualitative research that give it its “distinctive character”:

- aims which are directed at providing an in-depth & interpreted understanding of the social world of research participants by learning about their social and material circumstances, their experiences, perspectives, and histories
- samples that are small in scale and purposively selected on the basis of salient criteria
- data collection methods which usually involve close contact between researcher and the research participants, which are interactive and developmental and allow for emergent issues to be explored
- data which are very detailed, information rich and extensive
- analysis which is open to emergent concepts and ideas, produces detailed description and classification, identify patterns of association, or develop typologies and explanations
- outputs which tend to focus on the interpretation of social meaning through mapping and 're-presenting' the social world of participants

(Ritchie & Lewis 2003, pp. 4-5)

In *Qualitative Research and Evaluation Methods*, Patton points out that qualitative researchers are “co-participants in the meaning-making process”, and “one's theoretical orientation can have concrete methodological implications in how one thinks about and engages in data collection” (Patton, 404). As a qualitative method, oral history is inductive, iterative, emergent, and open-ended; as a narrative form, it generates “thick” description, is rich in background and context, and absorbs complexity.

Oral historians agree that oral history is distinct from other qualitative methods like semi- and unstructured interviews. Leavy's (2011) list of features that distinguish oral history from other interview methods includes: “(1) tapping into processes; (2) micro-macro linkages; (3) comprehensive understanding; (4) bearing witness and filling
in the historical record; (5) collaboration in the meaning-making process; and (6) a focus on participants' perspectives.” Fogerty similarly highlights the importance of subjectivity in oral historians' research stance, “Critical to the whole field of oral history is the belief that the opinions of the narrators are important, and their reasons for believing and acting as they do are central to the information-gathering process” (Fogerty 2001, 106). At its core, oral history is an integrative discipline, particularly suited to exploring feelings and values, and generating a holistic understanding that absorbs complexity.

While broadly defined, oral history is situated within a theoretical framework that embraces aurality and the narrative form, emphasizes people's perspectives (with a particular emphasis on marginalized perspectives), relies on shared authority in the creation and analysis of content, and aims to democratize the historical record. Oral history depends on the recorded document (the oral history interview) not just as part of the research process, but as its primary product. In his essay What Makes Oral History Different (1991), Alessandro Portelli highlights the importance of orality of oral sources, and the information carried by form of the narrator's voice: its tone, timbre, volume pauses, and accent. He also points to the narrative elements of oral history, which rely on the “unique and precious element” of the speaker's subjectivity, “as much the business of history as the more visible 'facts'” (Portelli 1991, 100). For Portelli, oral history is more concerned with the production of meaning than of fact, telling us not just “what people did, but what they wanted to do, what they believed they were doing, what they now think they did” (Portelli 1991, 99).
Portelli emphasizes the play of *relationship* in oral history; not just its ability to explore and shed light on big picture relationships by tapping into processes and elucidating micro-macro linkages (Leavy, 2011, p. 15), but the 'dialogic' relationship between the narrator and interviewer itself, which informs the outcomes of the interview (Portelli 2005, p. ). “It is the researcher,” as Portelli points out, “who decides there will be an interview in the first place. Researchers often introduce specific distortions; informants tell them what they believe they want to be told and thus reveal who they think the researcher is” (Portelli 1991, p. 54). As a dyadic or, as Portelli puts it, “dialogic” method, oral history's outcomes lean heavily on the quality of the relationship between the narrator and the interviewer,

The content of the written source is independent of the researcher's needs and hypotheses; it is a stable text, which we can only interpret. The content of oral sources, on the other hand, depends largely on what the interviewer puts into it in terms of questions, dialogue, and personal relationship.”

Portelli 1991, p. 54

Sara Lawrence-Lightfoot elaborates on the importance of this exchange between informant and researcher in *The Art of Portraiture*, underscoring the trickiness of navigating the (many) relationships upon which data (and its interpretation) depend:

It is through relationships between the portraitist and the actors that access is sought and given, connections made, contracts of reciprocity and responsibility (both formal and informal) developed, trust built, intimacy negotiated, data collected, and knowledge constructed. Relationships are never static—they are dynamic, evolving, and fluid.

Lawrence-Lightfoot 1997, p.135
Establishing a mutually beneficial relationship—rapport—is sometimes an elusive endeavor. Part of this rapport is based on common interests and goals between the researcher and participant, which, as Portelli indicates, are not always shared.

This collaborative relationship is characterized by what Michael Frisch calls “a shared authority”, “a profound sharing of knowledges, an implicit and sometimes explicit dialogue from very different vantages about the shape, meaning and implications of history” (Frisch 1990, p. xxii). Hilary Graham points out how storytelling modes affirm the subjectivity of informants, “more effectively safeguarding the rights of informants to participate as subjects as well as objects in the construction of sociological knowledge” (Graham, 1984, 118). In her article “‘I Was Content and Not Content': Oral History and the Collaborative Process”, Alicia Rouverol describes how collaborative projects make space for the “creation of meaning through dialogue”, in keeping with oral history's attempt to create a more democratic history (Rouverol, 2000, p. 77).

Shaped by memory, stories, and relationship, oral history is a flexible and emergent method, more concerned with the production of meaning than of fact. While oral histories provide rich, detailed descriptions of lived experience that generate useful data across a variety of disciplines, as a methodology oral history draws questions and criticism because of its perceived fallibility. Portelli often explores the subjectivity of memory and oral sources in his essays. For him, oral history is concerned with “questions of memory, narrative, subjectivity, dialogue [that] shape the historian's very agenda”, and “what makes oral sources fascinating is precisely the fact that they do not passively record the facts, but elaborate upon them and create meaning through the labor of memory and the filter of language”. Portelli contends that oral histories' usefulness is
not in generating facts about events for the historical record, but in acknowledging that stories—born of personal experience—are history,

Oral sources, then, help us question the boundary between what is of concern to history and what is not. In fact, the shifting and elusive boundary between History and stories is one of the relationships that make oral history meaningful. Ultimately, oral history is about the historical significance of personal experience on the one hand, and the personal impact of historical matters on the other.

(Portelli, 2005)

The information generated by narrators may sometimes be faulty, as critics point out, but Portelli insists that whatever the accuracy of narrators' memories, the meaning and significance they ascribe to people, places, and events is, in itself, a valuable historical fact,

The credibility of oral sources is a different credibility...the importance of oral testimony may often lie not in its adherence to facts but rather in its divergence from them, where imagination, symbolism, desire break in. Therefore there are no 'false' oral sources...the diversity of oral history consists in the fact that 'untrue' statements are still psychologically 'true', and that these previous 'errors' sometimes reveal more than factually accurate accounts.

(Portelli 1981, p. 100)

Oral historian and author Studs Terkel echoes this sentiment in the opening sentence of *Hard Times: An Oral History of the Great Depression*, “This is a memory book, rather than one of hard fact and precise statistic...in [their] rememberings are their truths...Are they telling the truth? The question is as academic as the day Pilate asked it, his philosophy not quite washing away his guilt” (quoted in Ritchie 1990, p. 9). Terkel goes on to relate a scene from *The Grapes of Wrath*,

It's the question Pa Joad asked of Preacher Casy, when the ragged man, in a transient camp, poured out his California agony. 'Pa said, 'S'pose he's tellin' the truth--that fella?'
The preacher answered, 'He's tellin' the truth, awright. The truth for him. He wasn't makin' nothin' up.'
'How about us?' Tom demanded. 'Is that the truth for us?'
'I don't know,' said Casy.

**Ethnography and Oral History**

Oral history shares theoretical and methodological ground with ethnography. Ethnography (like oral history) “is an ambiguous term, representing both a process and a product” (Agar, 1996, p.1). Ethnographers seem to agree that it is a written representation of a culture (Van Maanan, 2011, p. 1; Agar 1996, p. 1), although in *Recording Culture*, Daniel Makagon and Mark Neumann argue for “revitalizing and engaging qualitative researchers in the creative and scholarly virtues of a sonic approach to ethnographic work” (Makagon, 2009, p. x), collecting sound-in-place in order to produce audio ethnographies through a variety of means, including sound walks, soundscapes, and audio documentaries. Drawing on interviews and field work, ethnographic works generally contain “…a dash of history, something about the various environments—physical, biological, and social—and some detail on the things the group does and the beliefs they hold” (Agar, 1996, p.1).

Like oral history, ethnography depends on narrative and the unique, and often intimate, relationship between informants and the interviewer, and focuses on (and reveals) complexity and social context. It yields what Clifford Geertz, borrowing from Gilbert Ryle, calls “thick description”, the “piled up structures of inference and implication through which an ethnographer is continually trying to pick his way.” (Geertz, 1973, p. 7). “Thick” description reveals and emphasizes context, the “story behind the story” (Geertz, 1973).
Place is often central in ethnographic works, which tend to describe culture within a physiographic as well as social setting (Agar, 1996). In “Mapping histories: cultural landscapes and walkabout methods”, Veronica Strang describes an ethnographic method she calls “cultural mapping”, a mobile, participatory, collaborative, and observational process,

Cultural mapping explores people's historical and contemporary relationships with local environments. It involves "going walkabout" with informants in the places they consider to be important, and collecting social, historical, and ecological data in situ. It observes that places not only reflect the physical materialization of cultural beliefs and values, they are also a repository and a practical mnemonic of information.

(Strang, 2010, p. 132)

Strang points out that interviewing subjects “in place” draws on both abstract and experiential knowledge, and the “walkabout” method offers a relaxed and productive milieu for interviews (Strang, 2010, p. 132). Working in Australia, Strang’s research revealed “ancestral stories, genealogies, key events, patterns of use, rituals, and a whole set of connections with related people and places” (Strang, 2010, p. 144), in a landscape saturated with cultural stories and “story places”. She points out that these stories reveal a “vernacular process of mapping” that people engage in all of the time, as a way of “being-in-the-world”; her project just made the process and “its cultural particularity more visible and explicit...” (Strang, 2010, p. 146).

There are pronounced distinctions between oral history and ethnography. Hilary Graham notes what she feels is “a crucial difference” between ethnography and life history methods, which are “not a covert form of data collection. The narrator knows she is providing information; the story marks out the territory in which the intrusion in
tolerated” (Graham, 1984, p. 107). In her essay “Oral History as Ethnographic Encounter”, Monica Di Leonardo acknowledges the theoretical and methodological overlaps between oral history and ethnography, including gathering data from oral sources, “face to face with people with whom they might not ordinarily interact” and “the progressive impulse to give voice to the voiceless, to value the lives that contemporary ideology renders deficient, trivial--or invisible” (DiLeonardo, 1987, p. 2), but also points to their divergences. She notes, among other points, that oral history often lacks documentation and analysis of behavior, is intended for the public record, often considers itself intracultural rather than cross-cultural, has a relative emphasis on the past rather than the present, and that oral historians are frequently anonymous, part of a larger project, as opposed to the “heroic” ethnographer (DiLeonardo, 1987, pp. 3-8). Most importantly, she points out that oral history is a dyadic process, with a focus on the individual relationship and interview; ethnography, on the other hand, even when taking life histories, “usually consider them in the context of ethnographic encounters involving large numbers of people” (DiLeonardo, 1987, p. 4).

**Oral History Research**

Oral histories are used for a wide variety of research, but major purposes include filling in the historical record; understanding people's subjective experiences of historical events, periods of social change, and current events; contributing to the understanding of topical areas; and gaining “community” experiential knowledge (Leavy, 2011, p. 21). One of the defining characteristics of oral history is how it has been used to explore and add to the historical record, incorporating voices and perspectives of “ordinary people” often overlooked in dominant (and written) historical narratives (Leavy, 2011, p. 21;

Oral history projects range widely in topic, scope, purpose, and use, but primary functions include documentation, preservation, and opening a space for dialogue and action. Prominent efforts include over 50,000 Holocaust testimonials collected by the Shoah Foundation (1994-1999) as a part of the Visual History Archive, which has expanded to include the Armenian, Cambodian, and Rwandan genocides; the Civil Rights Documentation Project (1972-1982); the Duke Collection of American Indian Oral History (1967-1972); and the Act-Up Oral History Project, committed to recording interviews with every willing Act-Up AIDS activist.

Social justice is a focus of many oral history projects. The Vermont Folklife Center's project *The Golden Cage* (2008) interviewed Mexican migrant workers and Vermont dairy farmers in order to understand their interdependent lives, and the Vermont Worker's Center and Housing Is a Human Right utilize an oral history approach in collecting testimonials to direct and support social justice campaigns around healthcare and affordable housing. Anna Deveare Smith is famous for her documentary plays “Fires
in the Mirror” (1992) and “Twilight: Los Angeles” (1994) about the race riots in Crown Heights and Los Angeles, which draw on oral histories.

Sandy Storyline, a participatory oral history documentary project started after Hurricane Sandy – many of the stories were recorded via voicemail – features the voices of those most affected by the storm, with a goal of fostering civic dialogue about economic inequality, climate change, infrastructure development and the future of coastal cities. Voices of Witness, founded by author Dave Eggers (whose extraordinary oral history-based documentary novel What is the What (2006) tells the story of one of the Lost Boys of Sudan), publishes books that use oral history to illuminate contemporary human rights crises for inclusion in school and community curriculum (Voices of Witness, 2013). Straight from the Heart, a phone-in radio program that aired in Liberia starting in 2004, allowed Liberians to call in and share their stories from the Second Liberian Civil War, in an attempt at healing and reconciliation. Other oral history projects focus on cultural preservation, like the Foxfire magazine and book series, which documented traditional life and skills in the Southern Appalachians starting in 1966, and the thousands of songs and oral histories collected by folklorist Alan Lomax starting in the 1940s (and his father, John, before him).

**Oral history and aurality**

Oral history, as an aural medium, is well suited to dissemination through radio. As Siobhan McHugh writes in “Oral History and the Radio Documentary/Feature: Introducing the 'COHRD' Form”, “Radio connects its multitude of disparate listeners through the innately intimate qualities of sound. Sound 'envelops us, pouring into us,
whether we want it to or not, including us, involving us'...” Geographer Yi-fu Tuan concurs in his introductory review of the senses in his book *Topophilia: A Study of Environmental Perception, Attitudes, and Values,*

The eyes gain far more precise and detailed information about the environment than the ears but we are usually more touched by what we hear than by what we see. The sound of rain, thunder, wind, cry, music...Why is this? Partly, perhaps, because we cannot close our ears as we can our eyes. We feel more vulnerable to sound. "Hearing" has the connotation of passivity (receptivity) that "seeing" does not have.

*(Tuan, 1974, p. 8)*

Tuan goes on to suggest that the “intimacy” of sound may trace back to the fetus' and nursing infant's sensation of the mother's beating heart. As acoustemologist Stephen Feld points out, listening and speaking are physiologically integrative acts, marking a “special bodily nexus for sensation and emotion because of their coordination of brain, nervous system, head, ear, chest, muscles, respiration, and breathing” *(Feld 1996, p. 67).* Sound is not only *heard,* but *felt,* reverberating through the “echo-chamber of the heart and chest” *(Feld 1996, p. 67)*

At the same time as sounds enrich our sense of the environment, they encourage us to engage with it in a different way than our visual perception does. As geographer Daniel Sui points out, “The world of sound is essentially a unified field of instant relationships. Sound has been considered multivariate in that it can accommodate a variety of different realities at the same time. Unlike sight, sound is not directionally selective” *(Sui 2000, p. 235).* The following chart presents the contrasts between sound and sight that highlight its emphasis on relationship, and alludes to its ability to produce emotion and interaction with the environment:
Many have noted that our acoustic environments are changing (Sui 2000), particularly since the Industrial Age. When Edison invented the phonograph, he suggested that the voices of “our Washingtons, our Lincolns, [and] our Gladstones” could be preserved, and the American Philological Society requested one to capture the accents of the “Onondagas and Tuscaroras, who are dying out.” (Makagon 2009, p. 8-9).

People—not just folklorists—attempt to preserve sounds that they fear are disappearing; as a part of her essay “Soundwalking”, Hildergard Westerkamp leads readers on a “sound walk” through Vancouver, through old wooden arcades “which give a particular acoustic quality to your footsteps, and to those of others. Steps on wooden walkways used to be a common sound not only in Vancouver but also in many small towns or old forts all over British Columbia...” (Westerkamp 1974). In “In Search of Silence”, Kathleen Moore profiles sound seeker (and silence activist) Gordon Hempton, who, working to preserve
the rich sonic environment of the Hoh rainforest on the Olympic Peninsula from human intrusion (mainly airplanes), points out that “a drop of rain may hit 20 times before it reaches the ground--and each makes it own sound...You can change the pitch of a stream by removing a stone...A stream tunes itself over time, tumbling the rocks into place.” In Hempton's finely tuned sonic world, a channel gouged after a hillside has been logged is “only noise. But an old mossy stream? That's a fugue.” (Moore 2009).

Sound preservationists recognize, like Gordon Hempton, that sounds embody something unique, something that's captured only by the aural act hearing and listening—whether about a time, a person or a place. As Douglas Pocock writes,

...the world of sound is an event world, in contrast to that of vision, which is an object world (Ong,1971): it is a world of activities rather than artifacts, sensations rather than reflections (Shafer, 1985). It is dynamic; something is happening for sound to exist. It is therefore temporal, continually and perhaps unpredictably coming and going, but it is also powerful, for it signifies existence, generates a sense of life and is a special sensory key to interiority--unlike sight, which present surfaces (Ong, 1967).

(Pocock 1989, 193-4)

In The Tuning of the World, Shafer talks about a landscape's keynote sounds, shaped by geography and climate, that can affect behavior and lifestyle; and the soundmark, akin to the landmark, a “community sound which is unique or possesses qualities which make it specially regarded or noticed by the people in that community” (Shafer 1977, p. 10).

Portelli – who produced the “essay-in-sound” I Can Almost See the Lights of Home – A Field Trip to Harlan County, Kentucky – highlights the importance of oral history's orality, how it derives meaning from how it sounds. Transcripts do not capture the rich data offered by the sound of informants’ voices. As Portelli points out, the sound
is a story in and of itself, “Oral sources are oral sources...The transcript turns aural objects into visual ones, which inevitably implies reduction and manipulation” (Portelli 1981, p. 97). The oral document includes important “bearers of meaning” (Portelli 1981, p. 98; McHugh 2012 p. 36) like tone, rhythm, velocity, pauses, breaths, and volume. Accents carry additional information, particularly about geographic and class origins. Annotation and transcription cannot fully approach the completeness or the complexity of the aural document.

The use of oral history in radio broadcasting is often traced to the BBC's seminal *Radio Ballads* program, although Alan Lomax and others had produced “on the street” radio interviews starting in the 1930s. *The Ballad of John Axon* premiered in 1958, and told the story of a heroic engine driver who died trying to stop a runaway freight train. It integrated original folksongs, sound effects, and, most importantly, voices from the life histories of real people, an “unheard-of practice at the time” (BBC The Radio Ballads 2013). Radio producer David Isay founded Sound Portraits in 1994, “dedicated to telling stories that bring neglected American voices to a national audience” (Sound Portraits 2013), the predecessor of the popular and widely-disseminated national oral history project StoryCorps, archived with the American Folklife Center at the Library of Congress. Most public radio listeners are also familiar with This American Life—often the most popular podcast in the country (This American Life 2013)--which uses “true stories of everyday people” to craft its radio stories. Other prominent oral history-informed public radio programs include *Radio Diaries, Hearing Voices, and Song+Stories*.  

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Oral history and place

There are dozens of oral history projects that focus on relationships with place, land and/or ecology. Toby Butler, interested in the possibilities for sound and stories to offer a multi-sensory and intimate sense of place, produced a “sound walk” from oral history interviews about the Thames River in London as a part of his doctoral research in geography (Butler, 2006). In Linked, London-based artist Graeme Miller documented his neighborhood, razed for the construction of the M11 freeway outside of London, through oral histories, broadcast via 20 radio transmitters scattered along the highway that was once his home. “Creek Speak” maps oral histories about environmental and public health concerns near Newton Creek, a heavily polluted waterway in Brooklyn, and included them in an official public health report (The Newton Creek Alliance, 2013). The Tree Museum, an audio installation by artist Katie Holten, celebrates ecosystems by telling stories about the intimate lives of trees along the Bronx's Grand Concourse (The Tree Museum, 2013).

Land trusts across the country have initiated oral history projects about properties that they have conserved. For example, the Becket Land Trust documented its Quarry Hill property, featuring residents “of Becket and beyond” whose ancestors worked in the quarry (Becket Land Trust 2013); the community-based, collaborative Oral History Project of Martinez and Alhambra Creek Watershed “creates audio and video recordings of interviews with long-time residents of Martinez and adjacent rural areas” (The Oral History Project of Martinez and Alhambra Creek Watershed 2013); and the Land Trust for Tennessee Oral History Project interviews landowners who have placed conservation easements on their properties (The Land Trust for Tennessee 2013). The Ecological Oral
Histories project, based at the Landsward Institute at Northern Arizona University, trained graduate students “to unite oral history theory and methodology with ecological knowledge”; the information students collected contributed to baseline data about environmental conditions in the Colorado Plateau, and assisted land managers and owners in the region to make appropriate land-use decisions, and helps researchers determine baseline conditions of the Colorado Plateau.” Topics included:

- Changes in wildlife populations
- Alterations in weather patterns
- The spread of invasive species
- Changes in the availability of surface and ground water
- Changes in native vegetation
- Changes in ranching, hunting, and forestry practices
- Increases in recreational pressure on national forests and other public lands
- The role of the Museum of Northern Arizona in fostering regional research
- The restoration of traditional farming areas on Hopi lands
- The history of a proposed land trade on the Tusayan District of the Kaibab National Forest
- Changes in the darkness of Flagstaff’s night sky
- Historic effects of air pollution in the Verde Valley
- Changes in land managers’ understanding of ecological processes.
  (Ecological Monitoring and Assessment Foundation, 2013)

Oral histories may be one of a suite of methods used in historical ecology and environmental history to reconstruct past environments and ecological conditions – including flooding patterns, land use, and biodiversity – and how they have changed over time. Various studies have emphasized the value of oral history in gathering traditional and local ecological knowledge and contributing to baseline ecological knowledge and ecosystem management, rehabilitation, and planning (eg...Colburn and Clay, 2011/12; Holmes and Pilkington, 2011; Mager, 2012; Robertson and McGee, 2003; Riley and
Harvey, 2007; Thornton et al, 2010). Colburn and Clay describe the use of oral histories in required fisheries social impact assessments at the Northeast Fisheries Science Center of the National Marine Fisheries Service, as well as their broader contribution to fisheries management and research (Colburn and Clay, 2011/12).

In the wake of severe flooding in 2000, researchers in the River Ouse project in Sussex recognized the need for more creative thinking in addressing flood risks, and integrated historical research (primarily oral histories) on past land use with ecological surveys of current habitats. In this project, oral histories offered a number of key benefits, uncovering previously unknown information about pieces of land, land use, and biodiversity changes; generating new survey sites; and engaging the community, whose stories and input ended up “steering the direction of the research as a whole” (Holmes and Pilkington 2011, p. 92). Holmes and Pilkington (2011) conclude that the project illustrated how “new, interdisciplinary environmental science” could be generated by bringing together local and scientific knowledge to understand the complexities of managing land. Robertson and McGee, in their assessment of oral history's value as a resource for planning wetland rehabilitation in Australia, note oral history’s value in natural history management: in their study, it produced key knowledge and alternative management options, as well as important benefits in resolving areas of conflict, understanding social context and facilitating public participation (Robertson and McGee, 2003).

While some research has utilized oral histories to understand land use history, historical ecology, and management practices, the method offers potential for understanding the multiple ways people interact with place, from the concrete to the
abstract. Oral history produces detailed information useful for ecological landscape analyses, and the kind of rich social and historical context that can make significant contributions to place-based landscape analysis. As an open-ended, emergent method that assimilates complexity, oral history is well-suited to gaining perspective on the values, feelings, and ways of knowing that are essential in understanding sense of place.
The Lower Winooski Intervale

This chapter on the lower Winooski intervale is patterned after a place-based landscape analysis of the PLACE program, and presents a narrative typical of the PLACE approach. I chose not to include the explanations of landscape components for a lay audience (ie...describing what bedrock geology means) that are often integrated into a PLACE analysis for the sake of brevity. Like PLACE landscape explorations, it utilizes the layer cake method, contextualized by introductions to the physical, ecological, and cultural landscapes. PLACE landscape analyses are presented as web-based narratives, field trips, workshops and public presentations, rich in imagery, including photographs, that does not translate well to a literature review format. I have included references, which compromises the smoothness of the narrative, and utilize images somewhat sparingly, due to the limitations of this format. This section is intended to serve as a sort of “baseline data set” to offer a comparison to the results of my oral history research.

After the “Human History” section which concludes the landscape analysis, I present additional background information relevant to this project that would be out of place in a typical PLACE analysis: a discussion on intervales as a cultural and geographical concept, a detailed section on land ownership and use in the lower Winooski intervale, and a review of available resources.

Physical Landscape

The Winooski River has shaped the landscape of the lower Winooski intervale in the 10,000 years since the Champlain Sea receded. The glaciers that covered Vermont
during the last ice age retreated about 13,500 years ago, and meltwaters and a massive ice dam on the St. Lawrence River resulted in glacial Lake Vermont, which filled the Champlain Valley; at an elevation of ~189 m (620’), Lake Vermont extended to the foothills of the Green Mountains (Wright, n.d.; Chapman, 1937). The catastrophic failure of the ice dam about 12,000 years ago turned the lake into an arm of the North Atlantic, lowered the water surface ~100m (300’) in a matter of hours or days, and resulted in the brackish Champlain Sea (Wright, n.d.).

Over the next 2,000 years, the Winooski River produced large deltas where it met the Champlain Sea, which gradually retreated as the land “rebounded” from the isostatic depression caused by the weight of the glaciers. The fine sands underlying the lower Winooski intervale – and rising above it as its escarpments – are a result of these old Winooski deltas, and the river continued to cut its channel through these easily erodable materials when Lake Champlain gained its present, freshwater form about 10,000 years ago. Deep below the current river and its intervale are the ancient bedrock channels incised by the Winooski prior to the glacial episodes of the past 250,000 years (Stephen Wright, personal communication, 4/2014). The Winooski River pre-dates the Green Mountains, and cut through them as they rose up during the Taconic Orogeny.

As it eases into Lake Champlain, the Winooski has all of the characteristics of an old age river: wide and shallow, it meanders slowly through easily eroded sandy soils in level terrain, flanked by wide floodplains and the numerous curved remnants of former river channels (like Half Moon Cove in Colchester) that we call oxbows. The flat, alluvial bottomlands are bounded by a sandy delta terrace that rises 9 - 31 m above the
floodplain, representing the limits of post-glacial river channels (Severson 1988; Wright, n.d.). As the crow flies, it is just over 8 km from Salmon Hole to the Winooski Delta; as

Figure 7: Topography of the lower Winooski intervale, showing the escarpments representing the bounds of post-glacial river channels (Google Maps, 2014)

the river runs, it is nearly 16 km (Vermont Atlas of Natural Resources, 2014). About 1.2 km downstream of the bedrock (and concrete impoundment) constraints at Winooski Falls, the intervale begins to expand. At its widest point just east of Pine Island, it is nearly 4km across (in a line trending just E of N and W of S). The floodplain narrows to ~ 1 km at Macrae Farm Park and widens slightly again as the Winooski approaches its final bend to Lake Champlain. As rivers are wont to do, the Winooski continues to shift, cutting into its banks and building point bars. During large flood events, this process can
be swift and dramatic. Flooding and river movement continue to shape and define the physical – as well as ecological and cultural – landscape of the intervale.

**Physiography and the Winooski River watershed**

The Winooski River flows about 145 kilometers (~90 miles) from its headwaters in the town of Cabot, Vermont to its delta in Colchester on Lake Champlain. It is Lake Champlain's largest watershed, covering approximately 2800 square kilometers in Central Vermont (nearly 12% of Vermont's land area), draining all of Washington County, half of Chittenden County, and parts of Lamoille, Caledonia, Addison, and Orange Counties (Vermont Agency of Natural Resources 2008). The Winooski has seven main tributaries: Little River, North Branch, and Kingsbury branch entering from

Figure 8: Winooski River watershed. The study site outlined in this image is slightly larger than the one discussed in this project, which includes Winooski but not Essex Junction. (Field Geology Services, 2006)
the north, and the Huntington River, Mad River, Dog River and Stevens Branch entering from the south. Smaller tributaries in the lower Winooski intervale include Sunderland Brook, which enters the Winooski from Colchester, and two small unnamed brooks (Thomas 1985). There are over 90 dams, most of them now abandoned, in the Winooski River watershed, indicating the importance of water power to early Vermonters. Fifteen of these dams are on the Winooski River (Winooski Conservation District 2014), with three hydroelectric dams just upstream of the lower Winooski intervale in Essex Junction, the Winooski Gorge, and at Winooski Falls. The lower Winooski intervale as defined by this study begins at Salmon Hole, immediately downstream of the Winooski 1 hydroelectric dam at Winooski Falls.
The lower Winooski intervale is in the Champlain Lowlands physiographic region, Vermont's warm and fertile inter-mountain “banana belt” centered around Lake Champlain. Its source is in the neighboring Green Mountains to the east, and it flows in its ancient watercourse west and north across nearly half of the state. The Mississquoi and Lamoille Rivers to the north also flow westward to their deltas in Lake Champlain from their headwaters in the Green Mountains, crossing the general north-south trend of the Champlain Lowlands. Over its course, the Winooski drops 279 m in elevation; from Essex Junction to the mouth, the Winooski drops only ~ 26 m, largely in the vicinity of the dams and falls in Winooski and Essex Junction (Bazilchuk 1987, Severson 1988). In the lower Winooski intervale, its gradient is very gentle, averaging only .1 - .2 m/km for the ~ 15 km from Salmon Hole to the river mouth (Severson 1988).

**Bedrock Geology**

The ledges at Salmon Hole, just downstream of the hydroelectric generating plant at Winooski Falls, are one of the only bedrock exposures in the lower Winooski intervale. Here, the mud trails of ancient trilobites and old streambed channels are etched into pink Monkton quartzite, laid down in the tropical seas of the Iapetus Ocean over 400 million years ago, when Vermont was at the edge of a massive supercontinent near the equator. Just a few miles west is Lone Rock Point, overlooking Lake Champlain, the site of a dramatic thrust fault, world-famous among geologists: older, lighter-colored Cambrian Dunham dolostone pushed up and over younger, darker Ordovician Iberville shale, caused by the same mountain-building and rock-shoving forces that raised the Green Mountains, thirty miles to the east, during the Taconic Orogeny.
Figure 10: Physiographic regions of Vermont. Map by Northern Cartographic (Thomas, 1985b)
The limestones, quartzites, and shales that underlie the intervale are in north-sound bands of approximately equal widths: Monkton quartzite in Winooski, Dunham dolomite in the section including the Burlington Intervale, Ethan Allen Homestead, and Pine Island, and noncalcareous Iberville shale from Tamarack Hollow Farm at the end of Ethan Allen Parkway to the river mouth, including Half Moon Cove, Tamarack Hollow Farm, and associated wetland complexes. Except for the prominent exposures of Monkton quartzite outcrop ledges around Salmon Hole and the Falls at Winooski, intervale bedrock is deeply buried beneath surficial and alluvial deposits, and does not influence the character of intervale soils.

Figure 11: Centennial geologic map of Vermont (Doll, 1961)

**Surficial geology**

Surficial geology in the rich intervale bottomlands is comprised of deep alluvial deposits. The marks of glaciation that heavily influence most of Vermont and her surficial geology and soils are primarily evident in the escarpment above the intervale
floodplain. The sand terrace rising above the intervale, on which the cities of Winooski and Burlington are located, is made up of Winooski delta sediments from a middle stage of the glacial Champlain Sea and indicates post-Champlain Sea beach positions (Reno 1993, Severson 1988, Chapman 1937, Wright n.d.). As the Champlain Sea subsided, the Winooski continued to cut new channels through the easily erodable sediments of its former deltas, creating the intervale valley, until downcutting reached lake level, and the Winooski river system shifted to an aggrading phase, depositing sediments on the intervale floodplain (Severson, 1988). Archeological investigations in the intervale indicate that prior to European colonization, there was a period of depositional stability of the floodplain for “hundreds, perhaps thousands, of years” (Thomas 1985a).

Figure 12: Surficial geology of the lower Winooski intervale (Vermont Agency of Natural Resources, Natural Resources Atlas, 2014)

**Hydrology**

Flooding are at the heart of intervale ecology, part of the river’s life cycle as snow melts from the Green Mountains in the spring. The flow of the Winooski River fluctuates
significantly throughout the year. The highest flows and accompanying floods are generally in the spring, arriving with the seasonal rains and snowmelt from the mountains in the Winooski watershed. April has by far the highest mean flow (over 5,000 cubic feet/second), and July, August and September the lowest (700-800 cubic feet/second) (USGS, 2014). When the gauge at Essex Junction reaches 12’, farms in the intervale begin to flood, and at 18’, the intervale is inundated (USGS, 2014). Flooding and flow patterns vary from year to year, as does the extent and timing of river ice during the winter. Ice jams can cause substantial flooding.

Figure 13: Former channel positions abandoned prior to 1900; 1802-1857 data after Thomas, 1985b.

Archeological excavations in the intervale have revealed significant river channel movement during the 19th century, likely a result of deforestation in the watershed and the accompanying increase in runoff and sedimentation (Thomas, 1985b). In some areas
of the intervale, flood deposits during the 19th and 20th centuries were tremendous: ~120 cm, nearly 4' (Thomas 1985b).

The Winooski River travels through the Burlington Intervale at 105’ above sea level (Stevens, 1995), dropping in elevation as it approaches Lake Champlain. Water levels in Lake Champlain influence river gradient and base level, as well as flooding and deposition regimes. Lake level generally averages 95.5' above sea level, with a normal annual variation between high and low average water levels of around 5’ (USGS, 2014). The lower Winooski intervale lands lie at 98 - 108’; areas at 105 - 110’ tend to be well drained, with sandy soils. The lower Winooski intervale contains significant wetlands complexes adjoining the escarpments and in the lower-lying lands close to the river mouth, which provide valuable wildlife habitat as well as floodwater retention. Many of these areas, once drained and used as farmland, have reverted to wetlands.

Figure 14: Class 2 wetlands, shown in green; Class 1 wetlands visible in red along the lakeshore (Vermont Agency of Natural Resources, Natural Resources Atlas, 2014)

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2 Observed water level at Lake Champlain has varied between a record low of 92.61' (12/1908) and a record high 103.27' (5/2011)
Soils

The alluvial soils in the lower Winooski intervale are not influenced by bedrock. They are young, by and large free of rocks; renewed seasonally with flood-born nutrients and workable far earlier in the spring than the rich Champlain Valley clays (Thom Villars, personal communication, 9/2012), they have a deep history of agricultural use that predates European settlement by at least 600 years (Haviland and Power, 1994, p. 92). Vermont’s current intervale farmers wait until May 10 or so to plant their corn, after the floods come through and the fields dry (Jeff Senesac, personal communication, 3/2013). The lower, wetter areas of the intervale contain soils that are unsuitable for agriculture.

Intervale soils are classified as Muck or Peat or in the Limerick-Hadley-Winooski association, three soil types that are typically found together in floodplain regions. The Hadley and Winooski soils are very fine sandy loams, and are prime agricultural soils, in

Figure 15: Prime agricultural soils (Vermont Natural Resources Atlas, 2014)
Vermont's highest Agricultural Value Group (1), with a relative value of 100. These soils are seasonally flooded for a brief duration in late fall/mid-winter through early spring. The well-drained Hadley soils are in the highest areas of the floodplain, generally on the natural levees adjacent to the riverbank, and are present in from Salmon Hole through the Ethan Allen Homestead. As the river flows towards the lake and decreases slightly in elevation, the moderately well drained Winooski and poorly drained Limerick soils line the river. Limerick soils are found in the lower depressions, flood most frequently, and are typically drained if used for agriculture. The very wet limerick soils are unsuitable for agriculture, although some are or have been drained, and are generally further from the current river channel. Limerick soils tend to be adjacent to the mucks and peats,
which back up against the intervale valley walls in the lowest depressions where the water table is at or just below the surface.

**Ecological landscape**

The ecological landscape of the lower Winooski intervale supports many different natural communities, closely associated with soil types, including floodplain forests, wetlands, swamps, and marshes. The wide upper portion of the lower Winooski intervale between Salmon Hole and Macrae Farm Park that is not wetlands is primarily devoted to agricultural uses, although there are small areas of floodplain forests, mostly along the river, in the Burlington Intervale and at the Ethan Allen Homestead and Macrae Farm Park.

*Figure 17:* Tiered contribution to biodiversity. Tier 1 indicates the highest concentration of components to biodiversity (Vermont Natural Resources Atlas, 2014)
Riparian forests offer important habitat, as well as a travel corridor, for many wildlife species, and agricultural fields support grassland birds like bobolink and savannah sparrow. The river itself is home to a diversity of fish and other aquatic species. With a rich variety of wildlife and plants useful for food and medicine, the intervale is a “veritable 'garden of Eden', with its abundance of riverine, lacustrine, marsh, and upland resources” (Haviland and Power, 1994, p. 95). Archeological digs have unearthed kitchen hearths dating to 500 - 1000 A.D. containing remains of fish, aquatic invertebrates, mammals and plants still present in the intervale today.

Plant communities

The alluvial, seasonally flooded soils of intervales supports unique floodplain forests, although most have been cleared for agriculture. Elizabeth Thompson, an ecologist with a special interest in floodplain forests, writes that the “floodplain forests that occurred adjacent to the rivers...prior to European settlement must have been spectacular. Although we know little about these presettlement forests, we do know that they covered large areas and were likely continuous bands of forest extending unbroken for miles along all of our major rivers” (Sorenson and Thompson, 2000, p. 247). The Mississquoi River, which forms an east-west intervale about 40 miles north of the Winooski, still has expanses of truly “awe-inspiring” (Sorenson and Thompson, p. 247) floodplain forests near its delta, in the Mississquoi National Wildlife Refuge. Although much of Vermont's uplands have reforested over the past 150 years, most of the intervale lands are still used for agriculture, and the floodplain forests are now an uncommon natural community (Sorenson and Thompson 2000, p. 248).
Silver maples dominate the canopy in floodplain forests; cottonwood can be prevalent at some sites, and box elder is common, particularly along forest edges. Hackberry and black willow are occasionally locally abundant. Other tree species include slippery elm, American elm and the occasional butternut. In Silver Maple-Ostrich Fern floodplain forests, a rich carpet of ostrich ferns (gathered in spring for fiddleheads) dominates the herbaceous layer; sumac, elderberry, and fox grapes are common, as are herbaceous plants like jewelweed, wild cucumber, groundnut, hog peanut, touch-me-nots, and wood nettles (Sorenson and Thompson 2000, p. 253). Silver Maple-Sensitive Fern floodplain forests are found in low spots, in finer, wetter soil; hog peanut, false nettle, sedges, and beggar's ticks are among the herbaceous plants that may be present. Non-native plants like Japanese knotweed, goutweed, dame's rocket, and garlic mustard are locally abundant, and occasionally dominate.

Many of these plants have a long history of human use for food and medicine (Emery, 2002; Power, 1984). Plants found at the Winooski Site across the river from the Intervale Center (which revealed artifacts up to 4,000 years old) include sumac, blackberries, elderberries, butternut, hog peanut, and lamb's quarters, or pigweed (Power, 1984). The Chenopodium – lamb’s quarters and pigweed – are familiar weeds in intervale farm fields, and are related to quinoa and to one of the weedy floodplain plants that was domesticated as a part of the Eastern Agricultural Complex during the Late Archaic period (7900-1000 BC) (Smith and Yarnell, 2009). Jerusalem artichokes,
groundnuts, and hog peanuts are other members of the Eastern Agricultural Complex familiar in floodplain communities, as is husk cherry.\textsuperscript{3}

The lower, wetter soils of the intervale support open wetlands, swamps, and marshes. In his inventory of Winooski Valley Park District properties, Charlie Eiseman mapped 13 natural communities in the five lower Winooski intervale WVPD properties, primarily wetlands communities. There are a few small and scattered patches of forested wetlands. Buttonbush swamps (a very rare natural community in Vermont) can be found at Ethan Allen Homestead, on Derway Island (Eiseman, 2006) and in the wetlands behind Pine Island. An extensive cattail marsh is present in the Burlington Intervale adjacent to the Beltline, with smaller examples at Macrae Farm Park, Ethan Allen Homestead, and near the river mouth. Lovely river beach communities (also rare in Vermont), including

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure18.png}
\caption{Rare and uncommon palustrine and floodplain forest natural communities (Vermont Natural Resources Atlas, 2014)}
\end{figure}

\textsuperscript{3} A plant I had never encountered before I moved to Vermont.
rare plants like sandbar willow and creeping lovegrass, are present on some of the river point bars.

**Wildlife**

The riparian forests, agricultural fields, and wetlands of the intervale are home to a rich diversity of wildlife species, providing breeding habitat for migratory birds, tree forage for pollinating insects, and an important habitat corridor traveled by many animals, including fish and mammals. The river itself is home to numerous species of aquatic invertebrates, such as freshwater mussels, and fish, including migratory species like salmon and walleye, as well as bullhead, perch, northern pike, bass and the endangered sand darter. Salmon Hole is a favorite fishing spot, and contains spawning beds for walleye and, formerly, salmon. Large mammals such as moose, bear, and bobcat have been documented (Daniel, 2000); fisher cats, coyote, red fox, and river otter

Figure 19: Habitat blocks (yellow; indicating areas of 500 - 2000 acres), superimposed over riparian connectivity in blue (Vermont Natural Resources Atlas, 2014)
are also present, and deer, coyote, rabbits, beaver, woodchucks, muskrat and mink are common, as well as small mammals like meadow voles, white-footed mouse, and short-tailed shrew.

By one account, the Burlington Intervale alone is home (at various times of the year) to 22 species of mammals, 30 species of reptiles and amphibians and 144 species of birds (Stevens, 1995). Floodplain forests offer habitat for nesting songbirds, including rare species like Blue-gray gnatcatcher, Tennessee warbler, and Cerulean warbler (Thompson and Sorenson, 2000). The open fields offer hunting grounds for predators like Osprey, Red-tailed hawk and Rough-legged hawk, the wetlands and waters support loons, grebes, herons, geese, ducks, rails, gulls, and terns, and migratory waterfowl are seasonally abundant (Haviland and Power, 1994, p. 93). Sandy beaches offer suitable nesting habitat for turtles; swamps and oxbows may offer important breeding habitat for amphibians, including frogs, toads, and salamanders; and certain common species of tiger beetles (as well as one rare one, the cobblestone tiger beetle) are strongly associated with floodplain forests (Thompson and Sorenson, 2000).

**Cultural landscape**

Frequent floods renew the land’s fertility in the lower Winooski intervale, and have also embedded a record of human history over thousands of years. Abenaki Native Americans – the “People of the Dawn” – have been using the intervale nearly continuously over that time. The rich alluvial soils redeposited in floods generation after generation, milder climate at low elevations, abundance and diversity of river and floodplain ecosystems, and ease of travel by foot and boat, made intervales the “common
pot” of native communities throughout New England. In particular, the long growing season and rich soils made intervales much more suitable for agriculture than upland sites, as European settlers discovered when they arrived. Agriculture continues to define the intervale landscape, although the risks of climate change are taking their toll on farmers. Human history

Buried in the intervale’s agricultural soils are stone hearths, tools, ceramics, burial sites, impressions of cordage and basketry, and plant and animal remains that show periods of Native use stretching back to 3000 BC, and reveal seasonal hunting, fishing,

Figure 20: Detail from Samuel de Champlain’s Map of New France (1612), featuring Jerusalem artichoke in the top panel. Other foods, many harvested in intervales, appear below. Source: Wiseman, 2009.
and food growing and gathering patterns. Evidence of agriculture, including experimentation with cold-hardy hybrids, dates back over 600 years (Reno, 1993; Kelley, 2013); when European settlers arrived in the late 18th century, hundreds of acres were cleared for agriculture, much of it cornfields planted by Abenaki farmers (Reno, 1993). In the century after European contact, it is estimated that Native American Abenaki populations declined by 90%, primarily as a result of diseases brought by settlers (Klyza and Trombulak, 1999, p. 42).

Human use of the intervale intensified after Europeans colonization. In 1772, Ethan and Ira Allen bought up large tracts of “choice river intervale” for the

![Figure 21: Surveyor's map from 1830, recorded in 1798. The intervale is divided into 100 acre lots. Names include Loomis, Averill, and Van Ness. Source: Johnson Collection, UVM Special Collections](image-url)
Onion River Land Co., and within a generation, much of the alluvial forests had been cleared. For a few generations after the American Revolution, the intervale was known as one of the granaries of New England, producing rye, winter wheat, barley flax, and raising cows and pigs. Upstream land use patterns in 19th century Vermont had a major impact on the Winooski River and the Burlington Intervale. As the watershed’s hills were cleared for sheep pasture during Vermont's merino wool boom, surface runoff and flooding increased, and sediment traveled downstream to the lower Winooski. As a result, the Winooski river channel through the intervale shifted dramatically – 600 - 1000’ – over the course of only 80 years (Thomas, 1985b).

With the construction of the railroad (which still runs through the intervale and services the McNeil Power Plant) in the late 19th century, grain markets shifted west. Intervale farmers turned to dairy as transportation opened new markets in Southern New England. Much of the land was owned by absentee landowners, and worked by tenant farmers, a pattern that continued well into the 20th century. Agricultural uses – primarily dairy – continued into the 20th century, although wetlands reclaimed many acres that had previously supported farm fields. Alongside the Anglo-American industrial and agricultural history, French-Canadian-Abenaki families (many of whom lived in the Old North End) continued to use the intervale for agriculture, hunting, gathering, and seasonal festivals and gatherings (Judy Dow, personal communication, 3/2011; Reno, 1993).

By the second half of the 20th century, the Burlington Intervale also housed the city dump, squatter’s camps, and hundreds of junked cars. Organic farming returned to the Burlington Intervale in the late 1980s, supported by Will Raap, who spearheaded an effort to clean up and restore the Burlington Intervale. He founded Gardener’s Supply in
1986, and the Intervale Foundation (now the Intervale Center) in 1988, now a nationally recognized model for supporting local, sustainable food systems. In the latter part of the 20th century, conservation efforts by the Winooski Valley Park District began in earnest, and now much of the lower Winooski intervale is protected.

Although flooding is seasonally common and expected in the spring, risk has heightened in the past few seasons as severe storms cause unseasonal flooding, in accordance with weather pattern shifts predicted by climate change scientists. May-June of 2011 saw record rain and high water, and Irene flooded the Burlington Intervale in August 2011. This past season’s (2013) record rainy June had the river periodically at near-flood stage, until it finally inundated farms around July 4. The future of intervale farming is somewhat uncertain, as farmers weigh the costs of farming on a floodplain with the increased risk accompanying climate change.

Cultural context

The connection between people and place runs deep in Vermont’s intervales. Mazipskoik, an Abenaki village site near Swanton, VT (home to the St. Francis-Sokoki band of the Abenaki tribe) in the Mississquoi River intervale that is believed to be the oldest continuously inhabited settlement in Vermont. At least 12,000 years of Abenaki occupation has been documented in the Northeast (Bruchac, 2006; Wiseman, 2001; Totten, 2013), much of it centered around the wolhanak, or intervales, the “fertile bowls between mountain ranges that were capable of sustaining the many families who gathered there, forming permanent communities...” (Brooks, 2008, p. 17). In The Common Pot: Recovery of Native Space in the Northeast, historian Lisa Brooks (who calls Northern
Vermont and the Mississquoi home) maps and reveals the place-worlds of the Indian
Northeast, “a network of relations and waterways containing many different groups of
people as well as animal, plant, and rock beings that was sustained through the constant
transformative “being” of its inhabitants” (Brooks, 2008, p. 3).

The “common pot” (evoked by Native writers more frequently as colonists took
possession of their homeland) is a metaphor for a “cooperative, interdependent Native
environment...that which feeds and nourishes” (Brooks, 2003, p. XX). Brooks elucidates
the connection between the “common pot” and the “deeply situated social and ecological
environments” of the wolhanak, the “river intervales where Abenaki families flourished”,
pointing out the direct linguistic relationship between wlogan, the Abenaki word for dish,
and wolhanak. Brooks describes a typical wolhanak,

The annual planting of corns, beans, and squash stabilized the riverbanks,
added nutrients to the soil, and, when abandoned for a new field, created a
meadow habitat where waterfowl, game animals, and edible plants
abounded. This relationship between the river, fishing, and planting had
been ongoing for centuries, perhaps millenia.

(Brooks, 2008, p. 17)

Samuel de Champlain’s diaries remark upon the river valleys entering into Lake
Champlain, with “plains productive in grain, such as I had eaten in this country, together
with many kinds of fruit without limit” (de Champlain, 1878, p. 210).

When English settlers arrived in the Northeast, they called the alluvial floodplains
along the lower stretches of its rivers “intervails”, or “intervales”, terms that remain
peculiar to New England, though they have fallen out of use over the past few
generations. These words, “so well known throughout New England” through the early
1900s (Matthews, 1904), were “well understood in all parts of New-England” to distinguish “the many rich and fruitfull spots of land, such as they call intervail land, in levells and champain ground, without trees or stones, near the banks of great rivers.” (quoted in Matthews, 1904, p. 138). These intervales were the “old planting land of Indians” (cited in Matthews, 1904, p. 145), what Ethan Allen called “choice river intervale” (Blow, 1978) when he purchased a tract of land along the lower Winooski River in 1787, parts of which are now encompassed by the Ethan Allen Homestead. In his diaries, Ethan Allen describes his first impression of the intervale near the Ethan Allen Homestead:

I explored the intervales below the falls of said Onion river, and pitched my tent by a large pitch pine tree nearly opposite to an island, about one and a half miles below the falls, where I had observed large intervales on both sides of the river, and landed for the first time I ever set my foot on the fertile soil of Onion river, at the lower end of the meadow now known by the name of the old fields, where I discovered from my boat an opening like cleared lands...I went up the open meadow where the blue joint grass was thick till in sight of a large and lonely elm. Computing the open fields at 50 acres, I was much pleased with this excursion, promising myself one day to be the owner of that beautiful meadow.

(quoted in Lawrence, 1996)

Ethan Allen secured those open, cleared lands and meadows – the old Indian planting grounds – in 1787. The east-west intervales of the Winooski, Lamoille, and Mississquoi remain among the most hospitable agricultural land in Vermont.

Burlington Intervale

For many in the Burlington area and beyond, the term “intervale” is now synonymous with the Burlington Intervale, a unique urban-agricultural-wild tract of land within city limits that encompasses 700 acres of wetlands, agricultural fields, and narrow
bands of riparian floodplain forest on the Burlington side of the Winooski River where it passes through the cities of Burlington, Colchester, and Winooski. The “Intervale”, as it is affectionately known to Burlington's citizens, hosts a variety of land uses, including an industrial biomass power plant (running at capacity, it has the potential to power the city of Burlington), wetlands, the old city dump, radio towers, a large and longstanding community garden, riparian and wildlife habitat, recreation trails, and organic agriculture, supported by the Intervale Center, a sustainable food systems non-profit. Rena Calkins was born and grew up dairying in the Intervale, and lived in the brick farmhouse that now serves as the Intervale Center office. The Calkins dairy closed in 1992, when Rena was in her 80s. The Burlington Intervale housed other agricultural operations in the mid-20th century, among them a pig farm and slaughterhouse (Gardener’s Supply is in the old slaughterhouse building), dairy farms run by Lorenzo Howe and Rena Calkins, Gove's commercial gladiola nursery, and cornfields. By the latter part of the 20th century, the Burlington Intervale also housed the city dump, squatter’s camps, and hundreds of junked cars.

The term “intervale” is increasingly associated with the work of the Intervale Center. The Intervale Center manages over half of the Burlington Intervale, and owns 232 acres, held in a conservation easement held by the Vermont Land Trust, the Vermont Agency of Agriculture, Food and Markets, and the Vermont Housing and Conservation Board, with a primary purpose of agricultural land use. These lands support wetlands and riparian forests, ~8 established small organic vegetable farms (including the beloved 500-member Intervale Community Farm CSA), fields leased to Farms for New Americans (a program of the Association of Africans Living in Vermont, a refugee social
services organization), and conventional fields in corn, soybeans and hay farmed by Pat Fitzgerald. Intervale Center projects include the Intervale Conservation Nursery, the Farm Incubator Program, Success on Farms, the Intervale Food Hub, the Summervale festival, the Abenaki Heritage Garden, and a gleaning project (The Intervale Center, 2014). The Intervale Center and its programs have garnered national attention as a model for supporting local food systems.

The Burlington Intervale is a complex place, rich in stories and conflict. Intervale Compost moved off of the floodplain into Williston in 2011 after concerns about disturbing archeological sites and illegal leachate storage and dumping onto farm fields and into the river. Additionally, the state rezoned Intervale Compost lands as a commercial property, requiring an Act 250 land use permit application (a substantial process); Judy Dow was at the center of this conflict, and Intervale farmers still complain about her investigations into Intervale Compost waste disposal practices. The Burlington Free Press and Seven Days reported frequently about this contentious issue (eg., Totten, 2008; Page, C., 2008; Hallenbeck, 9/1/2007, 9/26/2007, etc.), as well as the 2006 sale of city lands (held by the Burlington Electric Department) to the Intervale Center (eg., Burlington Free Press/Rutland Herald Index, 9/5/2006; 10/5/2006; 10/24/2006) and, periodically, how the city deals with homeless camps in the Intervale (eg, 2002, 2012).

In the 1980s and 90s, the Burlington Intervale was a “landscape of fear”, dangerous and unwelcoming to the public (The Intervale Center, 2014; Dann, in Lawrence, 1996). Special interest newspaper articles (eg., Bittman, 2011; Johnson, 2006;
Figure 22: Map of the Burlington Intervale.  Source: The Intervale Center, 2010

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Banner Baird, 2007), websites (The Intervale Center, 2013; Gardener's Supply, 2013), academic studies (Lovell, et al, 2010; Comen, 2013), and histories about the Burlington Intervale conform to a transformative “junkyard to food systems oasis” narrative, typified by the history on the Intervale Center website:

In 1986, Will Raap, founder of Gardener’s Supply Company, spearheaded an Intervale clean-up effort to restore the Intervale – 700 acres of bottomland within the city limits of Burlington, Vermont – to its agricultural roots and feed Burlington. Thanks to more than 20 years of extraordinary work by the Intervale Center (initially named the Intervale Foundation) and those who farm here, the Intervale has been transformed into a nationally recognized center for sustainable agriculture.

In the 1980s, the Intervale was a dangerous and unwelcoming place for visitors. Agricultural fields had been abandoned, and people were using the Intervale as an informal dumping ground for tires, furniture and other garbage. Will Raap and many other dedicated community members removed garbage and debris, rebuilt depleted soils through composting and started gardening and farming, and through their actions, began to transform the Intervale from an informal dump to a beautiful agricultural and recreational resource for Burlington.

Today, visitors find in the Intervale a unique and innovative community built around growing, eating and celebrating locally grown food. At the Intervale Center, they find a mature nonprofit organization dedicated to strengthening community food systems by enhancing farm viability, promoting the sustainable use of agricultural lands and engaging people in the food system.

The Intervale itself has a long history of agricultural productivity. Native Americans farmed here a millennium ago. Since the 1700s, Vermonters have operated dairies and grown flowers and food here. The Intervale Center and the farmers who steward the Intervale today recognize that we are a part of this rich and diverse history of Intervale stewards, and we work to sustainably care for this place with this history – and these people – in our hearts.

(The Intervale Center, 2014)
Lower Winooski Intervale resources

The lower Winooski Intervale is very well documented. Archeological digs, conducted by the UVM Consulting Archeological program for development projects like the Beltline, the Chittenden County Circumferential Highway, and the McNeil Plant, are a rich source of information (e.g., Power, 1984; Thomas, 1981; Thomas, 1985a, 1985b; City of Burlington 1978); other archeological sites include the Mazza Site and the Winooski Site, both on the Colchester side of the river. Field Naturalist projects include Charlie Eiseman's comprehensive natural community inventory of Winooski Valley Park District Properties (Eiseman, 2006), Jeff Severson's exploration of river delta changes (Severson, 1988) and Nancy Bazilchuk's study of geomorphology and small mammal populations at Half Moon Cove (Bazilchuk, 1987). Other significant documents about the lower Winooski Intervale include a fluvial geomorphology report (Field Geology Services, 2006), and a river basin planning document (State of Vermont, Agency of Natural Resources, 1992).

Burlington Intervale resources

Most of the available resources focus on the Burlington Intervale. The Intervale Center has an official research agreement with the University of Vermont, and many UVM classes and students have done service learning and academic projects with the Intervale Center (including the spring 2012 place-based landscape analysis, Intervale Geographic, that sparked this project). It has been the subject of academic research, most notably on landscape multi-functionality, which encompasses social, cultural, and ecological values (Lovell et al, 2010; Comen, 2013). Other documentation includes land
management plans and recommendations (eg., Conway School of Landscape Design, 1993; Kolan et al, 2006; The Intervale Center, 2009); ecological assessments and inventories (eg., Stevens, 1995; Daniel, 2000; Carlson et al, 2003); and climate planning reports (Howard, 2012). Naturalist Gale Lawrence—who once spent a few weeks in the intervale, attempting to live off the land—created the comprehensive 1996 book, *Burlington Intervale: A Natural History Guide*, an indispensable (but now slightly outdated) resource that compiles newspaper articles, histories, and natural histories of the Burlington Intervale, along with nature-based observation activities for students (Lawrence, 1995). The resources listed above represent perhaps two thirds of the available documents focusing on the Burlington Intervale (and the lower Winooski intervale), which date to the 1970s; many are held in Special Collections at the UVM Library.

**Current land ownership and use**

The lower Winooski River intervale (the “intervale”) is located within the cities of Burlington, Colchester, and Winooski in Chittenden County in Central Vermont. It encompasses nearly 4,000 acres of floodplain, primarily agricultural land and wetlands, along the last ~ 15 km of the river from Winooski Falls to its delta at Lake Champlain in Colchester (Reno 1993; Severson 1988). There are other intervale lands upstream (generally east) of Winooski Falls and the Winooski Gorge in Williston, Essex, Richmond, Bolton and Jonesville after the river emerges from the Green Mountains and foothills (US Army Corps of Engineers 1973).
Much of the lower Winooski intervale has been preserved and/or conserved as open space and for agriculture. The Winooski Valley Park District has significant holdings totaling ~790 acres in its five intervale properties (Delta Park, 55 acres; Derway Island, 148; Heineburg Wetlands, 12; Ethan Allen Homestead, 284; Macrae Farm, 288) (Eiseman 2006). In 2013, the Vermont Land Trust (VLT) purchased the Pine Island Fitzgerald Farm property adjacent to Macrae Farm ~ 220 acres, currently in use by the Vermont Goat Collaborative. Along with the Vermont Housing Conservation Board and the Vermont Agency of Agriculture, VLT holds a conservation easement on 232 acres of land owned by the Intervale Center in the Burlington Intervale (Intervale Center 2009).

Figure 23: Winooski Valley Park District properties (Winooski Valley Park District, 2014)

The Burlington Intervale, within the city of Burlington, consists of ~700 acres of land, with an ownership mix that includes the Intervale Center (239 acres), the Burlington
Electric Department, Burlington Parks and Recreation, the City of Burlington, and the Calkins Estate (Intervale Center 2009). There are two Wildlife Management Areas totaling ~480 acres, managed by Vermont Fish and Wildlife Department: Half Moon Cove on the Colchester side of the river (294 acres) and the Intervale Wildlife Management Area (188 acres), owned by the Vermont Agency of Transportation. Part of the Intervale Wildlife Management Area is in the Burlington Intervale adjacent to the Beltline; the other part is to the west of Tamarack Hollow Farm, encompassing the wetlands remediation project constructed in the late 1980s to mitigate the impacts of Route 127, the “Beltline” (Vermont Fish and Wildlife Department 2014).

Figure 24: Locations in the lower Winooski Intervale

These preserved properties total ~2200 acres, and are by and large accessible to the public for recreation, although hunting and trapping are not permitted on WVPD properties, and firearms are prohibited within the city of Burlington. The remaining
lower Winooski intervale lands in agriculture include the old Howe Farm site, adjacent to the Intervale WMA and Ethan Allen Homestead on the Burlington side of the river, and the intervale lands owned by Colchester farmers, utilized for hay, pasture, soy, corn, vegetables, horses, and dairy. There are also ~ 350 acres of open wetlands north and west of Pine Island, and another significant wetlands complex of ~ 200 acres in the Burlington Intervale adjacent to Route 127 (Vermont Atlas of Natural Resources, 2014).
Methods

Study Purpose and Questions

The goal of this research was to evaluate the strengths and limitations of oral history as a method for eliciting the kinds of place-based information and stories useful for landscape analysis, using the rich social and ecological landscape of the lower Winooski intervale in Burlington, VT as a case study. Loosely following the “layer cake” landscape analysis framework, information was sought about intervale ecology, including soils, flooding, plants, and wildlife; land use practices and history (including agriculture, foraging, hunting, and fishing); landscape and river changes; and values and feelings about the land. Core research questions included:

- What kinds of information about place and ecology can oral histories generate?
- How can oral histories complement a typical quantitative landscape analysis such as those produced by Field Naturalist/Ecological Planning and PLACE students at UVM?
- What are possible models for incorporating oral history methods into place-based programs?

Research Design

Environmental oral history projects like those conducted by land trusts and other community groups were an important reference in designing questions and topics, and understanding possible uses for my research. I also referred to academic research that used oral history interviews to reconstruct past environments in order to inform land management and planning. The River Ouse project at Sussex University, England was particularly useful to me. As a part of this study, three interviews were conducted with
participants: an introductory interview to establish family history, history in the area, demographic changes, and features of the local landscape; a second “offroad” interview to hone in on features in the landscape previously described and instigate new memories and descriptions of landscape features; and a closing interview to follow up on questions arising from the first two interviews (Holmes and Pilkington 2011, p. 86). Although I didn’t conduct multiple interviews with all narrators, and the third interview often seemed unnecessary, this organizing framework was very helpful to me in designing my approach.

“Cultural mapping” is a participatory, collaborative, and observational process that resonates—on a theoretical and methodological level—with my oral history exploration of place. Cultural mapping focuses on relationships with place, creates space for participants to foreground their opinions and perspectives, and relies physical movement through places (Strang, 2010). “Walkabout” or “offroad” interviews were conducted with narrators in order to collect detailed, site-specific information in a more relaxed setting, with places and the natural world acting as trigger for memories, values, and feelings.

The “layer cake” landscape analysis approach provided the initial inspiration for this research, as well as a framework for data collection and analysis. A “typical” layer cake landscape analysis served as a sort of baseline data set to which I could compare my data; I drew from this ecological, cultural, and historical context in designing interview topics. Place-based and ecological landscape analyses of two sites in the intervale (the Burlington Intervale and Fitzgerald/Pine Island Farm in the Colchester intervale, respectively) for service-learning classes contributed to the background research for this
project. Field work included vegetation and wildlife surveys, natural community
mapping, and digging soil pits. Document review included vegetation and wildlife
surveys, natural community maps, aerial photographs dating to 1937, historical
photographs, physiographic maps and research (topography, bedrock and surficial
geology, and soils), archeological surveys, histories of the intervale, and land
management and planning documents. Research, as well as conversations, generated an
initial (and very comprehensive) list of potential participants for this project.

Selecting Narrators

An initial list of potential narrators was created by identifying intervale-based
organizations and members of their staff and board, intervale farmers, and individuals
who had conducted research in and authored documents about the intervale. Snowball
sampling techniques were used to identify further potential narrators, culminating in a list
of over 50 potential narrators. This list was organized by the potential narrators'
perspectives (or “ways of knowing”), as well as by the landscape “layer” that their
perspective and knowledge could provide information on.

In selecting narrators, my primary criteria were: direct experience with the land in
the intervale; longtime (20+ years) experience interacting with the intervale; and
including a diversity of perspectives in the group of narrators. I had other
considerations, including a commitment to including narrators who could speak to the
French-Abenaki perspective and the availability and accessibility of narrators. Potential
narrator perspectives were often aligned with people's jobs and/or relationships with the
land, and included: farmer (Colchester/”old school”/conventional and Burlington/”new
wave”/organic); ecologist; natural historian; administrator; stewardship/conservation; academic; forager; hunter/fisher; Native American (French-Abenaki); and historian. Some narrators represented multiple perspectives. I organized the list of 50+ narrators into three “tiers”, the top two “tiers” each comprising 6 individuals, with an equal number of men and women.

The first priority tier of narrators included individuals who had a long (20+ experience) in the intervale working directly and frequently with the land, and included a diversity of perspectives (French-Abenaki/historian; French-Abenaki/hunter; Colchester farmer; Burlington Intervale farmer; natural historian; academic/archeologist). The second tier of narrators was less diverse as a group, and while most individuals met both of the other two criteria, one did not. I selected that individual because I knew she was available and had a perspective, story and knowledge I was interested in including. The third tier as a whole was less diverse, and included many Burlington Intervale farmers; many of the people in this tier did not have 20+ years and/or direct experience. Because of potential narrator unavailability or inaccessibility in the group I had initially prioritized, I moved people who met my criteria from the 3rd tier into my priority group. Snowball sampling continued after I began interviews: one narrator I interviewed towards the end of my research was suggested by a number of others I interviewed.

**Scheduling and Access**

I started contacting potential narrators in the top two tiers in mid-October 2013, and conducted my last interview in mid-January 2013. Narrators were contacted by telephone, email, and postal mail with an invitation to participate in the project. Some
<table>
<thead>
<tr>
<th>Narrator</th>
<th>Role/Perspective</th>
<th>Affiliation</th>
<th>Interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlie Auer</td>
<td>Algonquin Indian heritage; fisherman; old timer</td>
<td>Auer Family Boathouse</td>
<td>INTERVIEW 1: 1/14 (3181 North Ave) INTERVIEW 2: 1/21 (3181 North Ave) INTERVIEW 3: 2/4 (3181 North Ave)</td>
</tr>
<tr>
<td>Hank Jaques</td>
<td>Algonquin Indian heritage; hunter; fisherman; old timer</td>
<td>Retired</td>
<td>INTERVIEW 1: 11/12 (Burlington Intervale) INTERVIEW 2: 11/19 (Colchester Intervale)</td>
</tr>
<tr>
<td>Phil Brett</td>
<td>Forager; fisherman</td>
<td>Abenaki Heritage Garden; Gardener's Supply</td>
<td>INTERVIEW 1: 12/19 (67 Marble Ave, Burlington)</td>
</tr>
<tr>
<td>Pat Fitzgerald</td>
<td>Colchester intervale conventional farmer</td>
<td>Fitzgerald Dairy Farm</td>
<td>INTERVIEW 1: 12/6 (Fitzgerald Dairy Barn, Pine Island Rd, Colchester)</td>
</tr>
<tr>
<td>Amanda Andrews</td>
<td>Organic farmer</td>
<td>Tamarack Hollow Farm</td>
<td>INTERVIEW 1: 11/14 (Tamarack Hollow Farm greenhouse, Burlington)</td>
</tr>
<tr>
<td>John Ewing</td>
<td>Conservationist</td>
<td>Winooski Valley Park District; Smart Growth VT</td>
<td>INTERVIEW 1: 12/10, (Northview Drive, Burlington) INTERVIEW 2: 12/10 (Derway Island)</td>
</tr>
<tr>
<td>Tom Hudspeth</td>
<td>Professor</td>
<td>ENVS/Rubenstein School at UVM; former Intervale Center Board Member</td>
<td>INTERVIEW 1: 12/9 (Aiken Center, Burlington) INTERVIEW 2: 12/9 (Burlington Intervale)</td>
</tr>
<tr>
<td>Diana Doll (DD)</td>
<td>Organic farmer</td>
<td>Stray Cat Flower Farm</td>
<td>INTERVIEW 1: 12/6 (Burlington Intervale, The Depot) INTERVIEW 2: 1/9 (Burlington Intervale, The Depot)</td>
</tr>
<tr>
<td>Elizabeth Thompson</td>
<td>Ecologist</td>
<td>Vermont Land Trust; Nature Conservancy</td>
<td>INTERVIEW #1: 12/5 (Ethan Allen Homestead, Burlington)</td>
</tr>
<tr>
<td>Gale Lawrence</td>
<td>Naturalist; writer</td>
<td>former Intervale Center Board Member</td>
<td>INTERVIEW 1: 11/13 (Huntington) INTERVIEW 2: 11/20</td>
</tr>
</tbody>
</table>
narrators who were comfortable with the idea of the project agreed to an oral history interview simply after an email inquiry. Others I telephoned, armed with a referral, and these introductory phone conversations served as an opportunity for me to answer any questions about my project, as well as to gain a sense of the person, their background and connection to the intervale, and their conversational style. Phone conversations helped me to begin strategizing about the kinds of information I might elicit from the person, the kinds of questions I might ask, as well as to begin building a relationship with the narrator. With a few of the narrators who were initially somewhat reluctant or unsure about the nature of the project, I had longer in-person meetings prior to recording an interview, which served the same purpose as an initial phone call, but gave a better sense of my project and what an oral history interview entailed. My mode of contacting narrators depended on a couple of factors, including their communication comfort zones (two narrators didn't use email), the type of contact information I had for them, and if and how I knew them previously.

**Conducting Interviews**

Open-ended questions, grouped around topics encompassing the narrator's experience and knowledge, guided my line of questioning. Prior to conducting an interview, I wrote an interview “guide” with accompanying questions that laid out the topics and issues that I wanted to address during the interview, within my primary interests of values, ecological information, land use change, and land use practices.
These guides were tailored to the experience of the narrator and the kind of information I believed they had to offer, either from my initial conversations with them or from what other people had told me about them. Sometimes, I was interested in specific stories or information: for example, from previous conversations, I knew that Amanda Andrews, a farmer at Tamarack Hollow, had experienced significant flooding, and had researched land use history at her farm; that ecologist Elizabeth Thompson had a special affinity for floodplain forests; and from Phil Brett, another narrator, I knew that Charlie Auer (of Auer Family Boathouse) had stories about landscape and river channel changes—both natural and man-made—at the river mouth. While each interview guide was different, there were overlaps.

I met with most narrators in a comfortable place of their choosing, most often their home or office; I interviewed one narrator while driving around the intervale in his vehicle, and another while on a long walk in the intervale. Sound quality—and interview quality—was often compromised as I conceded to narrators' comfort zones; this was particularly evident with Hank Jaques and Charlie Auer, both old timers. My time with Charlie Auer was often more like a visit than a formal interview: Charlie preferred to work on his own time and pace, sifting through pictures, feeding his dog, fetching items he thought I'd be interested in (pictures, maps, books, memorabilia, a plywood goose decoy, an old baseball game and cards). Sometimes his wife, who suffers from Alzheimer's, would come in to join us. Hank was, as he said, disabled, and he wouldn't entertain the idea of interviewing in another location than his car.

There were some questions I asked of all of the narrators, although the wording varied, including:
I started every interview by asking where the narrator was from, and then usually asked questions about their childhood experiences with place, as well as their family history and background. I generally gave narrators space to discuss experiences and events from their lives that they clearly were interested in talking about, but were not directly related to the intervale, although I attempted to gently shepherd them back with questions related to the intervale. After interviews, I spent a half hour or so writing reflections on how the interview went; successes and challenges; notes to myself about things I could have done differently; themes or information that stood out for me; and follow up questions or questions I wished I had asked.

I followed the accepted oral history principles and best practices of the Oral History Association (OHA), and relied on the guidance of the Vermont Folklife Center (VFC), which agreed to archive the oral histories. I met with the VFC before beginning interviews, after conducting my first interview, and towards the end of my interviews to review ethical, interviewing, and technical best practices; process; themes; next steps; and generally insightful conversation about oral history interviewing, meaning, and production. In accordance with OHA standards and VFC requirements, interviewees signed an informed consent form detailing the purpose of my project and how their interviews could be utilized, according to their wishes. Interviews were recorded with a Tascam DR-40 digital recorder in uncompressed .wav format (16 bit/44.1 Hz), and
then archived on my computer and on an external hard drive. I processed audio into random tracks using Hindenburg audio editing software, and burned .wav audio CDs for the narrators. I sent or gave CDs along with a thank you note, and in keeping with the spirit of oral history I offered narrators a small gift that conveyed something of my own relationship with the intervale: a quart of fox grape juice from grapes that I had picked in the intervale and processed in Fall 2013.

**Data Analysis**

I listened to all interviews at least once in their entirety and created content logs with timestamps, along with selected transcriptions of information or passages relevant to my research questions. I reviewed the content logs for anticipated and unanticipated recurring topics and themes among narrators, which I named and organized into groups and subgroups. I also reviewed the content logs for significant information and stories that coincided with the landscape “layers” of the layer cake method. Detailed concept maps were generated that highlighted and organized themes and information, including values and topics, drawing out the common and significant threads amongst narrators.

Short audio pieces were produced from the oral history interviews, loosely organized by landscape layers: River, Flooding, Soils, Flora, Wildlife, and History. Audio pieces were 30 seconds to two minutes in length, and were produced using Audacity open source audio editing software. The majority of the pieces were heavily “produced”, drawing audio from different locations in the interview, and editing for clarity and brevity. These audio stories were embedded in interactive online “sound map” using a web-based platform called “PlaceStories”, highlighting themes, values,
information and perspectives to tell a brief but integrative story of the natural and cultural history of the intervale, and people's relationships with it. Stories were selected that illustrated key and common themes and topics that surfaced through analysis of the oral histories, as well as significant place-based or ecological information. Many of the stories overlapped layers, but in the interest of simplicity and because of limitations in functionality of Place Stories, an online mapping tool, the stories are identified with a single “layer”. All narrators are represented with at least one story in the map, and all landscape layers feature at least two descriptive stories.

Study Limitations

Resource and time constraints placed limitations on the scope of this study, and the number of interviews that could be conducted and data collected. Scheduling difficulties with potential narrators added additional limitations, both for the inclusion of narrators and for conducting multiple interviews with narrators. While this project attempted to incorporate a diversity of perspectives, many important intervale stories remain un- or under told, including the homeless encampments and recent and archeological Abenaki history; although I invited Judy Dow, whose family history is closely tied to the Burlington Intervale, to participate in this project, her perspective is not represented.

“Walkabout” interviews, though presenting minor technical challenges, are a useful method, and are most pleasant later in the spring and early in fall, though they may be conducted in any season. This research was conducted mid-October to mid-January, and the holiday season and winter weather hindered consistent data collection.
“Walkabout” interviews were less appealing to many narrators because of cold weather; sometimes the prospect was downright dangerous because of icy conditions. Venturing out on the river in a boat with narrators, a valuable “walkabout” perspective for a river-bound project, would have been reckless. On top of presenting practical and travel obstacles, winter offers a different perspective and visual (and aural) triggers than are presented during the growing season: there was no snow during most walkabout interviews to spark wildlife discussions through tracking, plants are not growing, trees don't have leaves, many birds have migrated, insects are overwintering, farms wind down, and the ground freezes. While sound quality was generally good, an extremely high quality professional digital recorder was outside the budget of this project.
Results

People and their perspectives

Narrators' biographical backgrounds contribute to their perspectives and worldviews, shaping their social identities, values, and relationship with and ways of knowing the intervale. Oral histories elicited a wide range of data useful for landscape analysis, including detailed current and historical ecological information, stories about landscape and river change, and rich historical accounts of Burlington and the intervale. The information that oral histories generated was extremely rich and detailed, offering “thick” description that indicates the deep and multi-faceted social, cultural, and historical context of the intervale, as well as how people perceive and situated themselves within it. The following biographies attempt to draw out some of the most salient topics and themes produced in the interviews, as well as give a sense of the perspectives and interests of narrators that inform the kind of stories they focus on telling. Content logs with selective transcriptions and topics lists give a more complete sense of the thematic and topical ground covered in each interview.

Narrators included four women and six men, and fell into four general “categories” that convey their perspectives and relationship with the intervale: farmer, forager/hunter/fisherman, ecologist/naturalist, and professional. Narrators who fell into the first three categories offered information about intervale ecology and land use practices, as well as site-specific stories that often focused on landscape or river changes. Farmers included a conventional Colchester dairy farmer, a Burlington Intervale organic flower farmer, and an organic meat and vegetable farmer on the Burlington side of the river (but not associated with the Burlington Intervale and the Intervale Center). The
narrators who comprised the Forager/Hunter/Fisherman category had French-Indian connections, through marriage or family heritage. The Ecologist/Naturalists had worked on significant natural history-based projects in the intervale over the course of decades. The two narrators who were professionals (one a lawyer/banker/conservationist and the other a UVM professor) had direct experience with the intervale through frequent walks over many, many years, but their involvement with the intervale centered around conservation and education, and their interviews focused on aspects of the intervale's history over the past 30-40 years.

Figure 25: Areas of the intervale narrators were most closely affiliated with.

Half of the narrators reside and/or work at the locations indicated (Auer, Brett, Andrews, Ewing, Fitzgerald, Doll). John Ewing lives close to Phil Brett near the river mouth, but has deep knowledge about the Ethan Allen Homestead and other Winooski
Valley Park District properties along the river. Both Phil Brett and Charlie Auer discuss Half Moon Cove in detail. Hank is familiar with many locations in the intervale, and visits the Burlington Intervale and Macrae Farm Park daily.

Charlie Auer, who along with his sister Christine runs the Auer Family Boathouse at the mouth of the Winooski River, is somewhat of a local celebrity. Charlie and Christine's parents founded the Boathouse in 1928, and over the years, there have been scores of articles written about it; guidebooks recommend a stop at the Boathouse for its incredible views of the lake and the Adirondacks as well as its old-time charm; it's a local landmark and a local treasure. The Boathouse is visible from the bike path just south of the bridge over the Winooski, and it was – and is – beloved to many, many people, evidenced by a stockpile of cards and letters that Charlie treasures, as well as the thick guest books that visitors have signed with their affection and regards. After Irene, looters coming in by boat ransacked the boathouse, and stole or destroyed much of the memorabilia Charlie had collected over the years, including precious family photographs; Charlie chokes up with anger and sadness when he recalls the looting after Irene, as he often does. Luckily, some good soul salvaged some photos, cards, letters, books, and other items, although many of them are still waterlogged, and Charlie enjoys sharing his memories and showing old family and Boathouse pictures to visitors. The Boathouse was and is a family operation, and remains a center of community not only for a group of old timers who come to the Boathouse every Friday night to play pinochle, but for people interested in boating, fishing and the river.

Charlie is now 83 years old, and has spent most of his life at the mouth of the river. Five of the people that I interviewed mentioned Charlie and directed me to him for
questions about the river and its history, and said that a good deal of their understanding of intervale land use practices, ownership history and historical ecology came from conversations with Charlie. Charlie has a deep and detailed knowledge about fishing on the river, river delta and shoreline changes since the 1930s (three acres of his own property were lost to wind and lake currents), fishing and boating culture, and land ownership, land use, and development near the river mouth. Like many other “old timers” (like the farmers featured in Will Raap's video The Old Intervale), Charlie pronounced the word “intervale” as “interval”. He is a rich repository of stories and information gleaned from personal observation, experience, and relationships, as well as knowledge passed down to him from his parents, Charlie and Ida Auer.

Ida Benoit Auer ran the Boathouse until her death at age 96 in 1992, and many of Charlie's memories center around his mother, “the glue of the family”, and how she created community around her. Charlie's stories feature a deep knowledge of local people, family history and ties, and relationships, recalling his mother's extensive family and community relationships. Mrs. Auer was a Benoit, a well-established Burlington family with deep community ties and French-Indian roots. Mrs. Auer's parents came (separately) to Burlington from Canada. Her father, a skilled woodsman, walked down Gully Hill (now Depot Street) from the house he built on Lakeview Terrace in the Old North End to work in the waterfront lumberyards in the heyday of Burlington’s lumber industry in the latter part of the 19th century, like many other French-Indian men of that time.

Many times during our conversations, Charlie mentioned an old map, passed down through his family, of “the five tribes that were here, the Algonquin the chief one”.

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On the back of the map is a picture of “our Indian lady, the Princess”, an ancestor on his mother's side who married a Frenchman shipped over as a baby during the French Revolution. He ended up in Canada with the Algonquins, “Our side of the family was all from the Algonquins, my mother's side”. Ida Auer spoke three types of French: “Canuck French, Canadian French, and French French”. Charlie describes how French names were often Anglicized: Hebert to Abair, Bourgeois to Burgess, Benoit to Benway (familiar because of Benway's taxi, founded in the 40s by Charlie's cousin),

My grandfather's name was Jean Benoit (Ben-wah, French pronunciation), or Ben-oit (Ben-oit, English pronunciation), whatever, either one, but English, they'd say Ben-oit. And his brothers, when they came here, if they wrote their name out, like you did on the paper, they recorded it, and as far as they're concerned, here, this guy's name was Ben-oit. OK? Well, when- if you said it, Benoit (Ben-wah) and if you didn't write it down, they put BENWAY, and left it.

A memory that surfaced repeatedly during our conversations was walking with his mother and their garden cart to the Boathouse every day, stopping to work the gardens she kept on North Avenue, and visiting with an extensive network of friends and family along the way. During the Depression, Ida Auer ran an informal soup kitchen for many families in their community, with free food and soups made from vegetables from the garden brought down in the garden cart and fish from the river.

I showed you that picture, there's nothing on North Avenue. My mother used to pull me in a cart down to the Boathouse. But on the way down – I'm trying to think, there's a one way street off of Hunt School, I believe it is, and my mother owned that property. And she'd pull me down in the cart, and I showed you that picture of Johnnie [LeFay], they lived in the Old North End. And they were down further, but McGraw family, he married a daughter, Rita McGraw, they lived across from the orphanage, and that was my mother's cousin. We used to stop there and see Mrs. McGraw, and she was a cook in the orphanage. We'd go down – like I said, she pulled me in a cart, because there was no transportation beyond
Ethan Allen Skating Rink. And way down on the right where that one way street is – oh, there's two families on the way down that were usually home. One was the [Weemets] on the right hand side, and the other was an Italian couple that owned the ballfield where the Burlington High School is. That was all a garden...But we get down there, to that one way street, and work that garden, all summer long, right up in the fall, and she'd close it, and she'd open it up in the spring...She knew, by the moon, what to put in the ground. You planted by the moon, if you didn't do that, she believed your garden would never be any good. And from there we'd go down to the Boathouse, and work at the boathouse...On Monday or Tuesdays, she did the washing at home, and also baked probably 30 or 40 loaves of bread. And she did that because we didn't have any money come from the Boathouse, because my father never collected anything. Most of the time he gave everything away. You talk about gave away, my mother, whatever was ripening at the garden, she would bring down first down to the Boathouse in a little wooden cart that we had, and I was sitting in it. She'd bring that down there...and start working on it, and down the Boathouse, it wasn't too big at that time, and it was right by the river.

Every Friday was fish chowder down the river, and your families, it was free to them. All of her vegetables that she grew, carrots, peas, whatever, they were free to the people. She'd make a vegetable soup during the week, a pea soup or something, and it was theirs. Like I said, we'd go to the garden on the Avenue up here, she'd pull me down on a little cart, and it was a wooden cart. We'd go down there and work the garden, and then from the garden we'd come down to the Boathouse...Anybody, they used to bring their families down and stay there when their father went fishing, because they didn't have any food, so they ate there...During the Depression, they didn't have a lot of money...We'd take care of our own people. If you lived around there, we'd take care of them.

His mother also taught him about gathering plants in the intervale – wild onions (ramps), fiddleheads, a spring green that looks like lettuce, catnip – knowledge passed down to her through her own mother. Charlie's values, including how he feels about community, self-sufficiency, and the productivity of the intervale, surface through stories about his mother, exemplified in the recurring story about the garden cart. The garden cart stories also disclose the deep networks of family and community relationships that
Ida and Charlie are a part of, and the richness and detail of his memories about land use history and ownership.

Charlie Auer's father was a German who emigrated to Canada as a teenager in the early 1900s. According to his son, the elder Charlie Auer had a special relationship with animals. He taught his son about conservation and stewardship of natural resources, and it's through stories about his father that Charlie's relationship with nature and ecology are revealed. His values and opinions about private property and the double standard of regulatory authority exercised along the river by federal, local, and state government, favoring the wealthy and connected, are also informed by his father. Both of his parents contributed to Charlie's understanding of the Winooski River itself: its flooding cycles, the inescapability of floods on the floodplain, and its inevitable changeability. Charlie takes the ebbs and flows of the river – and his land along with it – in good stride. Over his 80-odd years, he's been a witness to many, many changes at the river mouth, through the action of river and lake currents as well as development, “Changes in the river, that's all your interval. All the way down through here, this has changed.” Charlie's conception of the intervale is grounded in an extensive network of relationships and the Depression-era years of his childhood, when people had little and depended on the river and the intervale for their livelihood, eating fish from the river, wild edibles picked from its banks, and trapping (particularly muskrats) for extra income.

Hank Jaques was born in 1940, and grew up in St. Albans, which he remembers as a rough-and-tough railroad town. His family has deep Vermont roots: his French surname was very prominent in the 1700s, and he's proud of his French and Indian heritage, which he names as Abenaki and Iriquois. He introduces himself as an
outdoorsman, “hunting, fishing, snowmobiling, skiing...” Hunting, fishing and the outdoors are at the center of Hank's being, and he talks about his love for nature as “inbred, it's just family...do you want to call it hereditary?...I think it was born in me, I really think it was.” These outdoor skills and activities, hunting in particular, were passed down to him by his father and brothers during his childhood, and Hank has many deer hunting stories. As he remembers it, everyone used to be outdoor people: fishing, gardening, hunting, and his worldview is based in a time “when people knew how to do things”. Hank often talks about the erosion of these down-to-earth values as the world has become more technology-based. As a hunter, land access is another recurring theme, common amongst older Vermonters (Gregory Sharrow, personal communication, 1/2014). With increasing development (including second homes), private property is increasingly posted against hunting and trespassing, “It's to the point now that if you don't have a permission slip in your pocket and you get caught hunting on a piece of property, you could get fined. It's really bad. It is really, really bad.” Hank also has detailed knowledge about fishing and hunting regulations, which he supports in order to manage and maintain wildlife populations. In particular, he's witnessed the impacts of overfishing, which he ascribes to people's greed.

Hank moved to Burlington in his mid-20s, when he began fishing on the Winooski River, and for a while he ran a bait shop down on Battery Street. Hank is disabled now, so he can't hunt or fish anymore, and, as he describes it, his “whole life is shot”. He “gets cabin fever so quick it's unbelievable”, and now he spends much of his day in his Volkswagon Jetta, following an established route that takes him through Colchester and to the Macrae Farm early in the morning, out to Porter's and Mills Points
on the lake, and then around to the Burlington side of the intervale in the afternoon. Sometimes he'll help Burlington Intervale farmers with welding projects. Hank has detailed information about bird and wildlife presence and patterns in the intervale from his daily observations from his car, and he talks to the Burlington Intervale farmers and keeps up with the fishermen as a part of his routine. He has a deep knowledge of fish and fishing, and in his view, the east-west running Vermont rivers are “all the same”, linked by the common characteristics of fish and their intervales. For Hank, the intervale is a productive landscape, rich in fish from the river and food from its gardens.

Phil Brett moved to Central Vermont in the early 1970s when he was 7 years old, grew up on a farm, and attended the University of Vermont, graduating with a degree in Biology. He spent his early childhood in Philadelphia, where his grandfather introduced him to natural history, hunting, and foraging for wild plants. He remembers his grandfather's hunting, fishing, and foraging “seasonal cycles” in the mid-Atlantic: the head of the Chesapeake in the spring, the Atlantic Coast in southern New Jersey in the summer, the Pocono Mountains in the fall, and then to the Susquehanna River for the westward “sacred journey” before winter set in. Later in life, when Phil described these seasonal patterns to Native American friends, they pointed out that his grandfather followed the same cycle as the Delaware Indians. Other stories also suggest his grandfather's connection to Native American and other communities of color. Phil relates one childhood memory from a Philadelphia city bus trip with his grandfather, when the African-American bus driver, a friend of his grandfather's, encouraged him to sit in the front of the bus during segregation, “Hey, Pops, you don't have to sit way back there. You can sit up front here. You can pass.”
Now married to a Native American Abenaki woman, Phil understands this story in a new light, and explores the idea of “passing” with his wife; the term “pass” also refers to Native Americans passing as white, and in Vermont, many people of Abenaki heritage “passed” (often as “French” or French-Canadian) for many generations, “hiding in plain sight” (The Vermont Movie; The Abenaki of Vermont: A Living Culture; Senier 2010; Day 1976; Bruchac 2005) to protect themselves and their families from discrimination and institutional abuse. Memories of Vermont's eugenics movement, founded in 1925 by UVM Professor Henry Perkins, are still fresh among Phil and his wife's family (forced sterilization and institutionalization of Abenaki people in Vermont did not end until the 1960s and 1970s (Gallagher 1999). Phil talks about his wife's grandfather, a logger turned Methodist minister who would hide Abenaki children from the Brandon Reform School\(^4\) when the UVM professors came to do “their mischievous deeds”. Phil and his wife are committed to maintaining Native American cultural practices like storytelling, dance, and hunting, and passing them on to their children.

This theme of a tangible continuity with past cultural practices extends to Phil's understanding of his relationship with the intervale. He lives with his family right next to the Winooski River in Northgate and has many years of experience fishing, boating and foraging for food and medicine in the intervale with his son, with whom he's spent a great deal of time on the river. He has a good understanding of intervale ecology and plant communities, as well as a deep knowledge of intervale history and land use practices, both from personal experience and from the many conversations he's had with old-timers like Charlie Auer and others at the river mouth. He is also involved in the Abenaki

\(^4\) The Brandon Training School closed in 1993.
Heritage Garden at the Intervale Center in the Burlington Intervale, and is interested in the Native American agricultural practices that have been “passed within families down for generations on generations, and they still use this techniques, even if they don't necessarily recognize them as Native American techniques…” Phil remembers a “trench and mound” style of Native American agriculture from his childhood neighbors' gardens, connects it to Abenaki cultural and agricultural historian Fred Wiseman's research and descriptions, and wonders if these undulating garden systems may have been inspired by the river meander scrolls like those at Half Moon Cove. He also remembers catching suckers in the spring on the Winooski in Central Vermont as a child, which he learned from a teenage boy who had learned it from his father, and so on back through generations. In relating this story, Phil again points to the continuity of past and present land use practices and Fred Wiseman's research, which shows that the “sucker, basically, in Abenaki, is called the garden fish...And all of the sudden, my experience as a child with this guy teaching us how to catch suckers fell into focus; all of the sudden, it meant something. It was connected, you know, to the river; it was connected to the place, and there was a reason for it.”

His deep sense of place in the intervale emerges particularly when he's talking about his son's connection to the intervale and about the stories he's absorbed from Charlie Auer. For Phil's teenage son, the intervale (specifically, Half Moon Cove) is “the place...If the intervale is his world, Half Moon Cove is the core, the center...That's his home. That's his woods....He knows it like the back of his hand..I've raised him in that area, and he's committed to that area”. Phil (and his son's) sense of place is born of personal experience and storytelling, and he often refers to Charlie's stories about how
people survived the Depression by relying on the natural resources of the intervale. For Phil, the past, passed down through oral traditions like Charlie's stories and land use practices like catching suckers and gardening techniques, is tangible in the present-day intervale landscape, and endows it with meaning.

Diana Doll (DD), who founded Stray Cat Flower Farm over 20 years ago, has been gardening in the Burlington Intervale since the late 1980s, when she had a plot in Tommy Thompson community garden. She grew up in a small town outside of Buffalo, and spent a great deal of time outdoors as a child. Her family hunted and had a large garden where they grew food, and as a child she learned how to put up food for the winter. Seasonality is a theme that runs through DD's memories of growing up, and, with the flower farm, continues to be a significant part of her life; as with all (most?) farmers, seasonal patterns and phenology is part of the way that they perceive and interact with the world.

Stray Cat was founded in the early 90s, one of the first three farms to lease land in the Burlington Intervale under the Intervale Foundation, along with the Intervale Community Farm. Her first memories of the Burlington Intervale date back to 1980 or so, when as a UVM college student she had a pizza delivery job, and they would sometimes get calls from the houses on Intervale Road,

...the Abair House, the Calkins house...there were like six houses...if you got a call for pizza the Intervale Rd it was always like the Hound of the Baskervilles because you'd come down here—and it was late at night, I always worked Friday and Saturday night to make better money—so you'd come down here, and it would be foggy, there would be no streetlights, and it was always exciting, you know, because you'd find the farmhouse...not like delivering up in town...And then I would come down
during the day to see what it was like, and cows in the river, cows in all the pastures, right up to the river of course, back then...

Over the past 30 or so years—20 or more working in the Burlington Intervale daily, during the season—DD has witnessed the growth of the Intervale Center, ideas and plans for innovative land-based projects like the Eco-Industrial Park, and many land use changes and former intervale businesses. Interested in local history, DD describes the old soda cans and tokens from the ballpark that was at the top of the hill at the turn of the 19th century, where Charlebois and Queen City Steel are now. The Depot, which she rents as for her flower shop, was once the ticket office; before that, it was used by the Railroad as a coal and milk drop-off. She's also interested in local French-Indian history, mentioning archeological finds, Mocassin Village (the French-Indian neighborhood in the Old North End) and eugenics, and recognizes the river's past as part of a network of transportation routes.

DD's relationship with the intervale is founded on her interaction with the land as a farmer. She has a detailed knowledge of how and where flooding occurs in the Burlington Intervale, and as a flower farmer, she's interested in intervale ecology, particularly the wetlands and its flora. As a part of her farm and business planning, she is exploring how perennial plantings and hedgerows can mitigate the impacts of flooding, sometimes collecting seeds to grow out from flood-tolerant plants in the intervale.

Unlike the other agricultural businesses in the intervale, Stray Cat can sell its flooded produce, reducing the impacts of floods. She has many flood stories, and (as with the pizza delivery story above) has a knack for setting a scene, and describes flood events in a painterly way, through the striking images that they created:
You know when you look at a pond and you can see the trees reflected in it? It was like that, only it was straight rows of bright red orange yellow purple pink zinnias lined up, and then their mirror image below them in the muddy water and blue sky above and the water moving. So it was just kind of something I've never seen before, it was just a great visual--it was really pretty. And then the water just kept getting higher and higher up on them, and then it didn't look as pretty after that.

Strongly attached to the idea of the intervale as open space and habitat, DD is an advocate for preserving the existing wildlife corridors that do exist in the intervale, as well as valuing increased recreational access to the intervale.

Pat Fitzgerald identifies himself as the 3rd generation owner of Fitzgerald Farm, located on the Colchester side of the intervale off of Pine Island Road, purchased in the 1930s by Pat's grandfather, son of Irish immigrants. Two of Pat's sons work with him on the farm (one runs a milk bottling business there), and, given the impacts of increased flooding in recent years, Pat wonders what the land and farm will have to offer his sons and generations into the future. Other narrators mentioned the Fitzgerald family, and Pat's father Mike was of Charlie Auer's generation; Mike Fitzgerald knew a lot of the farm land and family history, and was featured in Will Raap's video, The Old Intervale and the New Intervale, as a part of the “old intervale” tradition of conventional farming, much of it dairy farming. Pat knows a good deal of this history himself, and also speaks about agricultural practices on the farm in his father's day, as well as how he manages the farm currently, including mowing, herbicide applications, planting, and harvesting. He has a detailed knowledge of land use change and changes in the land wrought by the river; he identifies the most significant change he's witnessed in his lifetime as the increasing number of floods, and the erosion it's causing on the river banks.
Just as dairy farming has been a part of the Fitzgerald family and their identity for decades, the Fitzgeralds are deeply connected to the land they farm and the fabric of social life in the intervale. Pat and neighboring farmers now have mutually-supportive relationships that their parents and grandparents avoided, perhaps because of a longstanding mistrust between Irish and French (his neighbor's family still speaks French at home). As a farmer, Pat's relationship with the land is also revealed through stories about floods and flooding on his land (and the local land use history and development that has increased their impacts), the seasons, and the soils. The soils next to the river he describes as “pretty special soil, I think. It dries out quick, it grows well, anything will grow...It's that Hadley loam, and it grows just about anything really well. That's one reason we'd hate to leave, even with all the flooding.” Changing weather patterns and the associated increase in floods has spurred Pat to begin to adjust his growing practices: for now, shorter season corn, and faster harvesting capabilities, which translates into more heavy equipment. For Pat, the intervale is the highly productive, low-lying agricultural land worked by his father and grandfather before him, and that he hopes to pass on to his sons and grandsons.

Amanda Andrews is co-owner of Tamarack Hollow Farm, “one oxbow up”, as she describes it, from the Ethan Allen Homestead, on the site of the former Howe Farm adjacent to the Ethan Allen Parkway developments of the New North End (the “Three Virtues” neighborhood). Amanda grew up in South Jersey, in what she calls a consumer- and “elsewhere”-based community; she talks about feeling stratified by class and noticing the change in social relationships when her father switched to a higher-paying job and they moved to a larger home. Her feelings on labor were shaped by
spending summers as a teenager with her family in Gloucester, MA, a town with deep working class roots and strong community ties: she loved working, and working class culture appealed to her, “Everyone knew each other and helped each other out.” She also found similar values in the farming community when she started farming, after abandoning a PhD program in literature and social justice work with a nonprofit in New York City. Amanda describes her initial entry into farming as part of a “mental and ethical exercise” to understand the conflict between the globalized food system and economic and social justice, and, as a former vegan, how to eat meat and dairy ethically. She grounds her work as an organic farmer in a political framework, as a part of the struggle for economic and social justice through equitable access to land and food.

Amanda has been farming with her husband Mike at Tamarack Hollow for four seasons, and only one of them has been flood-free. Flooding is part of what defines Amanda's relationship with the Tamarack Hollow land, and she, like other farmers, has detailed knowledge about flooding patterns on her land and the impacts of various floods on her crops. Intervale soils and their productivity are another compelling theme. She has also conducted extensive research into the land use and ownership on the site of her farm, and has an understanding of the farm site as reflecting parts of the intervale's and Vermont's history: the old Howe Farm and its use as a tenant or poor farm in the middle of the 20th century, the construction and impacts of the Beltline (which is directly adjacent to their farm), river movement, and the farm's abandonment in the early 1980s after its topsoil was stripped and floodplain development was prohibited.

A keen observer, Amanda has accumulated a great deal of knowledge about the patterns of plant distribution and succession—as well as what comes in on floods—in
Tamarack Hollow's woods and fields as well as historical and land use information about the property. Amanda offers a unique window on intervale lands as a site of conflict, describing the impacts of flooding, development, beavers, and river movement, as well as an understanding of the divide between the “new wave” of organic farmers associated with the Intervale Center and the “old guard” of conventional, native Vermonter Colchester farmers. The Tamarack Hollow farmers don't fit into either group, even as organic farmers: Amanda describes Mike as a “9th generation Vermonter, lumberjack, French-Canadian...”, and they've built relationships with the conventional farmers across the river. Amanda offers insight into the opportunities and barriers facing intervale farmers: while the soil is “amazing”, risk is high, recent floods have had a major impact on their land and business, and consequently they have decided to leave it for higher ground.

John Ewing lives on the Winooski River just off of North Avenue, and spends a great deal of time walking in the lands that he's helped to conserve through the efforts of the Winooski Valley Park District, of which he was a founding member in the early 1970s. He grew up northeast of Philadelphia, attended a private Quaker high school, and went to Amherst College. Growing up in a “lovely rural area”, a “lovely pastoral place” that is now developed, he spent a great deal of time outdoors, walking in the fields and woods, and he still delights in his daily walks. Trained as a lawyer at Yale Law School, he moved to Burlington in the early 1950s, developing an expertise in zoning and planning, writing the zoning and planning documents for communities like South Burlington and Shelburne. John offered a dynamic history of Burlington's industry,
economy, and business life over the past 60 years, as well as a description of
development patterns throughout the city.

He eventually shifted his professional career to banking, ending up as the
president of the Bank of Vermont, but John was – and remains – deeply involved in
Vermont's conservation movement. He is very knowledgeable about its history,
including the formation of early conservation organizations in Vermont like Green
Mountain Audubon, the Nature Conservancy and state entities like the Vermont Housing
Conservation Board (VHCB). John speaks about how regulations can support
conservation efforts, and how relationships are, in the end, key to successful land
conservation. In John's opinion, conservation should be a “gentle” practice, earning the
support of people from all walks of life, from environmentalists to politicians to farmers.
He has significant insights into the relationship between development and conservation,
and founded a (now-defunct) organization called Smart Growth Vermont to tackle
sustainable community development in the state. John has a deep understanding of how
innovative organizational models (like VHCB and the Winooski Valley Park District)
(WVPD) can facilitate and fund collaborative efforts to conserve land. Through the
efforts of the Winooski Valley Park District, much of the lower Winooski intervale has
been conserved as open space or agricultural land, and John's values emerge most clearly
when he's talking about these conservation successes.

For John, integrating the economic benefits offered by land-based efforts like
agriculture is an integral part of productive conservation, “All of these are different ways
of approaching the same issue. But making the lands economically productive and
profitable is an extremely important way of conserving land…because you're allowing
someone to make a living off of keeping it open...” Other aspects to John's relationship with the intervale are as an avid birder and wildlife-watcher, and his frequent walks on intervale lands, particularly those conserved by the WVPD. For John, the intervale is an example of a highly successful and productive conserved landscape, with open space, wildlife habitat, sensitive natural areas, wetlands, as well as sustainable agriculture.

Tom Hudspeth came to Burlington in 1972 after getting his Master's in Natural Resources in order to help found the Environmental Studies program at the University of Vermont. Growing up just outside of Houston (his father taught law at Rice University), Tom's early interest in the outdoors and natural history was cultivated by supportive parents and mentors, and he speaks fondly of the 1000s of acres land behind his home, “as wild as it could be” and full of wildlife, that he rode through with his elder brother. His experiences as a National Park naturalist solidified his interest in environmental interpretation, communication, and education, and he is currently a professor in the Environmental Studies program and School of Natural Resources at UVM.

Tom's relationship with the Burlington Intervale centers around his teaching and research, which focuses around sustainability and sustainability education. He has led service-learning classes and field trips in the Burlington Intervale since 1981, often in collaboration with the Intervale Center. Sustainability is a main theme for Tom when talking about the Intervale. For Tom, the Intervale is a “rich” tapestry of natural history, human history, environmental policy, and ecological stories that evoke the four “E”’s of sustainability: environment, ecology, economics and equity. Tom served on the Lands Committee on the Board of the Intervale Center in the early 2000s, when the organization was embroiled in a lengthy conflict over Intervale Compost, as well as facing difficult
personnel issues. He has walked his dogs in the Intervale for decades (although less so during the growing season, as he doesn't want to disturb the farmers), and has been a member of the Intervale Community Farm CSA since the early 1990s.

Tom's first memories of the intervale are from the early 1970s, when he would drive to campus every day from Mallett's Bay, timing his commute around the Fitzgerald's dairy cows' daily walk across the road to pasture after milking. His long experience with the Intervale offers many stories about land use and landscape change, and like many other narrators, he remembers when the intervale was an informal dump (“washing machines, rusted car bodies, toilet bowls, refrigerators...”). He is intimately familiar with the Intervale Center and its history and programs, and speaks at length about the Burlington Intervale as a sustainability story, rich in social capital and community. Tom relates a detailed history of the Burlington Intervale that begins with Lyman Wood, an advertiser from Connecticut who founded the mail order Garden Way Company (manufacturer of the Troy-Bilt Rototiller) in the 1960s, and turned it into a multi-million dollar enterprise. Gardener's Supply, founded by Will Raap in 1983 and established in the old McKenzie meatpacking plant in the Burlington Intervale in 1990, is a successor to the Garden Way Company. In the 1970s, Wood asked Will Raap to head a local task force examining Burlington's local food production. Gardener's Supply, the Intervale Foundation, and Intervale Compost were soon born, part of Raap's vision to restore the Burlington Intervale and its soil. Tom's historical accounts include a vast amount of detail, and, often, backstory that focuses on people and relationships; for example, he remarks about the relationship between Will Raap and Rena Calkins,

Somewhat of a discrepancy with Pat Fitzgerald's account of the location of the dairy barns down on the floodplain below Pine Island.
Of course, he [Will Raap] was Rena Calkins' golden-haired boy. He could do no [harm]--they hit it off. Rena had the last dairy farm in Burlington, and she loved Will. All of us in society are very fortunate that she and her heirs have sold, or sold at bargain rates, or donated land, or leased land to the Intervale Center for the benefit of everyone...

In Tom's long and detailed stories, the intervale is a rich and diverse socio-ecological landscape that expresses values of sustainability and community, comprised of a network of human and ecological relationships.

Gale Lawrence was born in Vermont in 1941, but moved out of the state at an early age as her father pursued job opportunities around the country; as a child, she often lived in towns and suburbs, and had little exposure to the natural world. She obtained a Master's degree in English and taught at the National Cathedral School in Washington, DC in the 1960s, where she volunteered for the Poor People's Campaign and met Martin Luther King, Jr at a National Cathedral School luncheon. She moved back to Vermont “to be home again” in 1975, bought a house on Sherman Hollow Rd in Huntington, and fell in love with her new neighbor, Bob Spear, then director of the Green Mountain Audubon Center. Bob was a farmer, with roots in the Colchester intervale, and an excellent naturalist and expert birder (the Birds of Vermont Museum features his bird carvings); as Gale describes it, Bob “opened her up to the natural world”. Gale went on to teach in the English and Field Naturalist programs at UVM, and published three books on natural history, the first drawn from the weekly columns she wrote for the Montpelier Times Argus.

Gale’s relationship with the intervale is founded on her perspective as a naturalist. Her first encounter with the intervale was in the late 1970s, when her partner Bob took her to the old Burlington dump to watch the courtship display of snipes, and she soon
started leading natural history and birding walks and writing about her Intervale excursions for local papers. She attempted to “live off of the land” in the Intervale (for a period that she remembers as a few days, but others\(^6\) recall as three weeks), and in 1993 she produced a natural history guide to the Burlington Intervale for the Intervale Foundation, intended as a resource for local teachers. Gale served on the board of the Intervale Foundation in the 1990s, and offered a history of the development of the Burlington Intervale that begins with Lyman Wood, paralleling Tom Hudspeth’s account. Among his other ventures, Wood founded Gardens for All, a national network of community gardens; the Tommy Thompson community garden in the Burlington Intervale was one of its first sites. Gale’s account of the Burlington Intervale highlights the McNeil Generating Plant and Intervale Compost as embodying a “closed loop cycle” to productively utilize waste. From her many years of walks and natural history explorations of the Burlington Intervale, Gale is familiar with its ecology, particularly bird life, and she articulates how intimately the land and the river are tied. For Gale, the Burlington Intervale is a “special place” in the midst of the city, offering respite and open space for people and wildlife as well as a transformative story of sustainable development.

Liz Thompson is a conservation biologist and ecologist, and currently works for the Vermont Land Trust and teaches at the University of Vermont. She has lived in Vermont since 1984 (although she lived in Vermont during the “formative years of 1-4”). Her parents were interested in natural history, and growing up in eastern Massachusetts, she watched the rapid development and disappearance of land, initiating her interest in

\(^6\) Ecologists Elizabeth Thompson and Alicia Daniel, personal communication, 10/2013.
conservation. After college, she worked for a few years on conservation projects in Maine, and then came to the University of Vermont to work with Ian Worley, a professor of Botany and Environmental Studies. Her specialty is natural communities mapping, classification, and assessment, and she is the co-author of a guide to the natural communities of Vermont, *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont* (2000). Liz is always on the look out for patterns in the landscape, an interest sparked by Worley, and seeks to understand the processes behind them; walking through the intervale with Liz is a wander through a series of questions about patterns of plant distribution, topographical nuances, and river movement. As an ecologist, Liz thinks in systems and relationships, and, despite her role evaluating natural communities, has an expansive view of the “quality” of ecosystems, and “great faith in these systems to restore themselves, and tolerate invasions, and figure out how to deal with them.” She contextualizes the presence of non-native plants like goutweed and Japanese knotweed in the intervale within a long history of human, plant, and animal migrations.

Liz first encountered the intervale when driving through it along the Beltline (a topic that arose among all of the narrators), and Professor Worley introduced her to its ecology during graduate school at UVM. The first in a long string of professional projects focusing on the intervale came in the spring of 1984, when she was asked to map significant natural communities in the Burlington Intervale for the Nature Conservancy.

I got into my car, drove to Burlington, drove down into the intervale, and it was a lake. It was completely in flood. I had not even--It hadn't even occurred to me. I drove back, and I was quite embarrassed, and I said to Bob [Klein, Director of the Nature Conservancy], it will have to wait a few weeks, before I can actually walk around in the intervale. So, it was
great, because that is the intervale. That is the intervale. It's all about flooding. Flooding makes it what it is. Flooding makes it as amazing as it is.

Liz is familiar with many natural communities because of her conservation work, but she has a particular affection for the floodplain forests found in intervales, because there's something very appealing about the “open forestland, the park-like forestland”. She points out that they're also rare, “because most of the floodplain land has been converted to agricultural land, because it's the best agricultural land...so there's not much left, there's just these little bits here and there...I have thought about them in this area as strings of pearls, these pearls connected by little pearls...” Her values come into focus when she talks about the floodplain forests of the intervale; the larger floodplain forests in the “strings of pearls” are “real gems on the landscape that should be protected and preserved, I think, for what they are...”

Liz has an ecologist's understanding and curiosity about the intervale, with an extensive knowledge of its trees, plants, wildlife, and the river processes that shape it, and a deep concern for the increased flooding climate change will continue to bring to the agricultural lands it supports. She's also interested in the social aspects of the intervale: she was a member of the Intervale Community Farm CSA, sees great potential for place-based environmental education, and mentions the encampments of people living in the intervale. Floods and flooding permeate Liz's understanding of the intervale, shaping the land, its soils, floodplain forests, and wetlands, as well as the challenges of agricultural production now and into the future; for Liz, the intervale is a special landscape supporting unique natural communities, deserving of protection and care along with the agricultural lands.
**Interviews**

As the preceding introductions to narrators indicate, oral history interviews produced a rich portrait of the intervale from a diversity of perspectives, offering a great deal of local historical and cultural context, as well as ecological information. Interviews yielded significant quantitative information about landscape change, river movement, fishing and other land use practices, as well as qualitative information about values and place meanings, particularly around the intervale’s productivity and related themes. Other common themes and topics, expected based on interview questions and guides and encompassing ecological information as well as values, included: flooding and flood stories; river ecology and river movement; fish and fishing; bird life; the quality of the soils; foraging patterns; conservation and stewardship; and the intervale as “open space”, or a “wild” landscape. Emergent and unanticipated themes included: the Beltline; how early experiences and mentors influenced relationships with nature and place; seasonality (especially among farmers); the intervale as a productive and sustaining landscape; values, including labor, community, economic justice and private property and land as a commons.

When asked to describe the intervale, narrators were consistent in their basic conception of the intervale as the low, rich floodplain land next to the river, primarily used for agriculture, encapsulated in Pat Fitzgerald's concise definition, “Low land next to the river, in this area primarily used in agriculture.” Many narrators understood the stretch of floodplain lands from Salmon Hole to the river mouth—the lower Winooski intervale—as a distinct and special place. Nearly all of the descriptions referred to
intervale ecology (the river, flooding) and/or productivity (agriculture and soils, wildlife
habitat), typified by these responses:

It's the wet land along the river, and particularly fertile because it brings
the nutrients down the river. Always was considered prime agricultural
land. Ethan Allen recognized that, but the Native Americans before him
did. I would define it as the floodplain area along the river; occasionally
flooding.

(John Ewing)

This is a rich, rich area that you get this flooding in the spring most years,
so the deposits of the rich soils, silts and sediments and so forth on the
land; so it's a pretty prime site for where the Intervale Center is doing its
activities, and over on the Winooski Valley Park District/Ethan Allen
Homestead part there again, where the New Farms for New Americans
site is where you have a lot of especially Bhutanese farmers, it's a pretty
amazing area. It's urban agriculture at its best.

(Tom Hudspeth)

Along with the associations with Native American agriculture, Ethan Allen, and the
Intervale Center, narrators expressed their understanding of the intervale in terms of land
ownership, land use, the etymology and pronunciation of the word itself, wildlife habitat,
agricultural experiences, fishing, “wild country” and “open, urban space”, and flooding
and river ecology.

The related themes of the river and the fertility of the soil form the core of
narrators' conceptualization of the intervale, signaling understandings of the intervale as a
productive and sustaining social, ecological, and agricultural landscape. Hank Jaques and
Charlie Auer offered particularly long and eloquent descriptions, rich with story and
metaphor, of the intervale as a sustaining landscape, integrating into their accounts
meanings and values, childhood memories, networks of people and relationships, and a
strong sense of place. In the following excerpt from his description of the intervale,

Hank Jaques imagines it as Indian habitat,

It's just--the land--it's just. Well, I'll tell you. OK. The intervale--it would be ideal, with the river the way it is--it would be ideal for, 150, 200 years ago, when the Indians were around here, it would be ideal habitat for Indians, let's put it that way. Because you've got the river, you didn't have the dams in Winooski, so the river was basically a river is a river--no big dam up in Bolton. Just the main river, no obstructions. It was just a basic river. And the land, agriculture-wise, growing--the Indians were great for corn, potatoes. Ideal place for Indian to habitat, for habitat. Because you've got the water, you've got the fish, you've got the river, you've got the land, you've got…everything. You wouldn't have anything to want. And that would my interpretation of the intervale. And people are utilizing it today, just like the Indians would, back 200 years ago, by having your gardens, or even just like below the Winooski, below the dam in Winooski, you've got those three little islands? I mean, with the main river, without the dams, just the flowing river, those three little islands would be ideal habitat for a little Indian family, a little Indian tribe, 10, 15 people. Perfect. You know. And that to me is priceless. And like I said, the whole intervale would be ideal, ideal. Basically because of the river, and the real fertile soil. Those are the two most important things.

(Hank Jaques)

In his description of the intervale, Charlie Auer remembers working at Derway's Farm as a child, and the sheer productivity of intervale soils,

In the spring of the year, we'd go back when the river went down. The whole area down there was all natural; that used to flood. And when it went down-the Fitzgerald's, too-they used to cultivate it. They never had-I don't ever remember them putting anything down on the ground. They just turned it over, they cultivated it, and then they'd plant. And whatever they put in - like Mr. Derway, when he was up here, he'd put the cabbages in, and if we didn't pick them out soon enough, they got so big, they'd split. That was really-in the intervale the same too: you couldn't leave it, because they really grew. Everything. I don't care if it was carrots or what, they grew. It was really something to see.

(Charlie Auer, 1/14/2014)

This powerful theme—of almost overwhelming productivity—was repeated and consistent throughout interviews, and was most clearly expressed when narrators talked
about intervale soils, as indicated by Charlie's and Hank's quotes above. Colchester dairy farmer Pat Fitzgerald talks about his land as containing some “pretty special soil, I think. It dries out quick, it grows well, anything will grow...It's that Hadley loam, and it grows just about anything really well. That's one reason we'd hate to leave, even with all the flooding…” (Pat Fitzgerald, 12/6/2013). Tamarack Hollow Farm's Amanda Andrews sounds amazed as she describes her soil,

It's amazing soil. When I first came here, I had the fear: yeah, I've done this for three years for other people, but what if I put seeds in the ground and they don't grow, because there's some secret incantation they never taught me or something. It's like Jack and the Giant Beanstalk here; everything just grows, and flourishes. It's so…more than I could have asked for. I had no idea the soils were this good coming here...

(Amanda Andrews, 11/14/2014)
The value of productivity also underlies traditional land use practices like hunting and fishing. Both Charlie Auer and Hank Jaques talk about the (mostly former) abundance of fish in the Winooski, and they support regulations to maintain healthy wildlife populations and mitigate over use. Charlie closed his last interview by reiterating how many people the intervale used to provide for through fishing, hunting, trapping, and gathering.

This value of productivity also bears with it a love for the land. Many of my narrators expressed this feeling: when Charlie Auer describes the intervale soils, he chokes up and tears come into his voice; ecologist Liz Thompson at first fumbles while attempting to articulate her affinity for floodplain forests; conservationist John Ewing talks about how he walks every day, and how much he loves the land and the outdoors; and Hank Jaques says that his love of the outdoors is just “bred” in him, in his blood.
Values related to productivity also emerged, including community and social and ecological interdependence, labor, and economic and food justice. The value of community was a common theme, clearly articulated when narrators talked about the Burlington Intervale, where “social capital is alive and well” (Tom Hudspeth) through Intervale Center programs like the Intervale Community Farm CSA, Summervale celebrations, and the support networks among farmers. Farmers Amanda Andrews and Pat Fitzgerald also describe mutually supportive relationships outside of the Intervale Center's network. Phil Brett talks about the importance of ties between family, community, and story, and Charlie Auer reflects nostalgically on the sense of community he felt growing up in Burlington in the 1930s, when “everyone took care of each other”. Charlie's stories reveal the intervale as a series of interconnected people and relationships, encapsulated in his oft-repeated “iconic story” of walking with his mother and the garden cart, visiting people along the way; the garden produce is made into soups for free community dinners at the Boathouse. Charlie's garden cart story also expresses values of economic and food justice that are clearly articulated by Amanda Andrews when she talks about why she farms and Tom Hudspeth when he discusses food cooperatives and the Intervale Center's founding values as well as its current programs.

The river threads as a theme throughout all the interviews, creating conflict through flooding and river movement, and offering the richness and nutrients that continue to make the intervale productive and valuable for agriculture. All narrators spoke about the river's flooding cycle, through memories about specific floods and their impacts, information about flooding patterns over the land, and understandings of river and flooding ecology. Among narrators, it was commonly understood and acknowledged
that seasonal floodwaters brought in nutrients that renew soil fertility, and they accepted
the fact that floods were an inevitable part of intervale ecology. Second hand memories,
histories, and stories about flood of 1927 surfaced in many interviews (Amanda Andrews,
Diana Doll, Charlie Auer, Hank Jaques, eg). Nearly all of the narrators talked about the
floods of 2011, with the “unprecedented” (Liz Thompson) high river and lake levels that
kept much of the intervale inundated in the spring, and then Tropical Storm Irene at the
end of August, described as “the worst” ever experienced (Pat Fitzgerald, who had to
kayak to his dairy barn to feed and milk his cows), and a “disaster, a catastrophe” (Hank
Jaques). Liz Thompson talks about how the floods of 2011 were “wake up call”,

I mean, it was completely unprecedented, how high the lake level was. And obviously, here in the intervale too, how long that flood was, how high the water was, you know, no…it just exceeded all historical flooding on the lake. In some sense here, and on the lake, that was more dramatic in a sense than Irene, which was more dramatic in the medium-sized and smaller rivers, but those two events that year were just like, OK, life is different now. This is different now. We can continue--and we know, from what the scientists are telling us, we can continue to expect that now.

(Liz Thompson)

Narrators—farmers in particular—acknowledge an increase in flood events, particularly
over the last few years. Given the increasing risks of erratic weather bringing storms and
flood events, farmers are weighing their future in the intervale. For Amanda Andrews,
the deciding point was the early July 2013 floods, coming on the heels of a successful
and flood-free 2012, “...that's when we really gave up on any plans of farming this land in
the future. We had been looking for a farm to move to since Irene, winter 2011 and into
2012, halfheartedly in 2012...” Amanda believes that climate change – as predicted by
scientists – is increasingly bringing erratic weather and storms; the farm can no longer
absorb the risk, and is moving to higher ground. Pat Fitzgerald is adjusting his planting
and harvesting practices, and acquiring equipment to increase harvest speeds in the face of unpredictable weather; Diana Doll is planting flood-tolerant perennials.

Due to their many years of experience with flooding and flood events, farmers have a detailed understanding of flooding patterns and hydrology on their land. Diana Doll explains the movement of floodwaters in the Burlington Intervale,

It will flood from--there's a pond behind the Intervale Center's barns, and just north of that pond there's like a swale in the woods that's always wetter, and you can tell, especially in the spring, because it's real mucky. And the river will flood up into that swale, and it will come out near the path that goes from the public parking lot to the river. It will cross Intervale Road at that path, and continue on a swale between McNeil and the Intervale Community Farm, but it will also then branch north and travel up the hedgerow between our farm and the road, so the southwest-the southeast corner of our farm is where it would enter first...It's the southwest corner. From there it goes directly north between our farm and the road, and we have cedars planted there as well, because they can take the water, and slow it down. And then from there--I don't know, it just--by the time it's doing that, you know, everywhere else is flooded but our field and our buildings. Secondary it will come up in what was the New Americans garden--it will come up in the corner of theirs, and slowly get higher and higher, but they're quite a bit lower than us, so it's sad, because they're flooded, we're not. The greenhouses are also on the highest point.

(Diana Doll)

Pat Fitzgerald and Amanda Andrews offered similarly detailed descriptions of flooding patterns and movement on their land.

Change was another significant theme, with narrators offering detailed information about river movement and landscape change. River movement topics included site-specific stories about where (and how quickly) banks are eroding and point bars are being built, as well as Charlie Auer's stories about changes at the river mouth.

Landscape change and river movement is intricately entwined with land use and development, another prominent theme, as well as with flooding, which has increased
with development in the watershed. A history of development in Burlington and the surrounding regions emerges through stories, from Burlington's heyday as a lumber town in the mid to late 19th century (Charlie's grandfather worked in the waterfront lumberyards, along with many other men of French-Indian descent), to the development of the New North End in the generation after World War II, when Charlie bought his modest ranch house on North Avenue, by developers like “One Nail” Hawkey (John Ewing). The old Howe Farm – now Tamarack Hollow – provides a unique insight on local development and land valuation: its upper fields were sold to make way for development in the New North End, parts of the farm were taken by eminent domain to construct the Beltline, and in the early 1980s, the topsoil was stripped off of fields and sold when the owner discovered the City of Burlington would not permit development on the floodplain.

The Beltline (the Northern Connector of Route 127, completed in 1971) is a prominent topic, mentioned by all the narrators. Liz Thompson sums up the general feeling about the Beltline, which cuts directly through the intervale’s wetlands, when she talks about her first impression of the intervale, driving along the Beltline for a UVM class, “Ian Worley basically introduced me to the intervale, and explained it to me, and what it's all about, and why that road is so stupid.” Amanda Andrews and Pat Fitzgerald offer detailed information about the impacts of the Beltline on their lands. Amanda describes how the significant wetlands complex on the old Howe Farm (now Tamarack Hollow) was implemented to remediate the wetlands filled to construct the Beltline, and the material removed was used to build parts of the Beltline's berm. Pat Fitzgerald describes how the top of Pine Island was removed and carted across the river to build
the berm for the Beltline, as well as how development has brought a significant increase in flooding to his land,

With the building of the Beltline, there's less area for the water to fill in when the river comes up, so it pushed more water this way, towards us. And that wasn't too bad—it was worse, but not real bad—but in the latter years, since they've developed Tafts Corners, there's been a lot more water that's pushed down the river. And we've been to meetings about this, with the state and whatnot, and they claim there isn't, but talking with other landowners on the river and at the mouth of the lake, we've all seen the same increases at the same time.

(Pat Fitzgerald)

Oral histories also revealed ecological information and personal and site-specific stories about soils, flora, wildlife, and human history, as well as landscape and river change, useful for understanding and analyzing landscapes. Interviews produced particularly rich and detailed information about fishing from Charlie Auer and Hank Jaques, including fish species and their natural histories (with a focus on spawning and habitats), favored spots, fishermen and other river characters, equipment and techniques, bait, fish populations, management history, and river culture. Hank and Charlie describe using willow whips, which snapped back when a fish was caught, before “tip-ups” became common; they also point to the dramatic declines in populations of walleye, the best eating fish on the river, and support regulations to restore populations. Accounts of overfishing, as well as management practices, reveal how people value wise resource use. Fishing stories reveal special fishing spots along the Winooski, often associated with spawning beds. Hank Jaques describes a setback in the river near the Macrae Farm,

How it was created, I don't know--I have no idea. It's part of the river but it's not the main river, let's put it that way. I don't know what you'd call it. It's part of the river, that's all I know. There's nothing great about it, except that the fish do come in here quite a lot -- spawning. A lot of fish come in here and spawn, because it's not fast fast fast water, and it's easier
for them to spawn, the spawn seems to hang around better and hatch, the way they're supposed to. Especially the bullpout--bullhead, horn pelt, whatever you want to call them.

(Hank Jaques)

Charlie Auer often talks about Half Moon Cove, which used to be “excellent on fishing”,

“a very special place to fish”,

Half Moon Cove used to flood every spring, and the fish in there were abundant. They really – the minnows used to go in there, and all the fish used to go in there and eat them. And then when the water went down, they’d stay there, so we could go in and fish...It started 150’, 200’ up from the access area, and...it went right in back of the movie house there, the Sunset Theater. In the 40s it started changing, it started filling in. In the 40s and 50s it got real bad...

..The river was right next to it. In the spring of the year in high water, we could go right through the reeds, probably 60 or 70', and go right into Half Moon Cove...Other times of the year the water was too low, and you couldn't get through. But now you can't get through any time. Well, in '11, it did; the water came up high in '11 and filled that thing with fish again. See, we used to go over there at first ice and fish there, for perch, pumpkinseed, rock bass, on first ice.

....You see, this used to be a very special place to fish. In the spring of the year, the fish used to go in there, and they had their eggs or whatever, their young – most of them are egg layers – and they would grow up in there. We could go even when the water dropped, I could go with a boat in here and fish or get minnows, but in the fall of the year, when this froze, I could go in there, pull my boat in here, stop, and go in here and get minnows out of there. Cut a hole, and fish-perch, whatever. Pumpkinseed, rock bass, everything was right in there. Northern – One of the big things that was in there – oh, Boy. Ain't that awful [remembering] – Bowfin! Bowfin. They used to load up here in the spring of the year and drop all their young and when the next spring come get out of there. If they dropped their young right off, then they could get out of there...But some waited too long...so they couldn't get out. They, you'd fish in there, later on. Anytime in the summer, going fishing.

(Charlie Auer)
Charlie's story weaves changes in the river with a sort of natural history of fishing in Half Moon Cove. Phil Brett also talks about Half Moon Cove as a special place, where sense of place is strong: for his son Ian, Half Moon Cove is his “place”, his “home”, where he was most comfortable: “he knows it like the back of his hand.”

Interviews also generated information about the presence of flora and wildlife, including sightings and habits of rare and/or migratory species. Hank Jaques reported seeing cranes at Macrae Farm for the past few years (he identified them as whooping cranes and associated them with the cranes at Dead Creek in Addison; they are more likely sandhill cranes), “which have been around here forever”. Many narrators reported seeing bald eagles at Intervale compost. Charlie Auer describes how, before the Dead Creek wildlife management area was implemented, snow geese used to stop over for a few days on their migration south to feed in the shallows at the river mouth, and his father would leave wild rice for them to feed on. According to Charlie, wild rice used to grow in the shallows near the mouth of the river, and his mother and others used to harvest it for personal consumption and to use as bait for hunting waterfowl. Most narrators described gathering and eating fiddleheads, and mentioned the wild onions, or ramps, from which the Winooski takes its name, although there are few if any wild onions left in the lower Winooski intervale. Charlie remembers when they were common, and commonly gathered near the Boathouse, and offered a detailed description of their growth and proper foraging practices.
### Table 2: Layer cake information

<table>
<thead>
<tr>
<th>Narrator</th>
<th>Role/Perspective</th>
<th>Geology</th>
<th>Hydrology/Flooding/River movement</th>
<th>Soils</th>
<th>Flora</th>
<th>Fauna</th>
<th>Human history</th>
<th>Land use change</th>
<th>Land use practices</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlie Auer</td>
<td>Algonquin Indian/French-Indian/French Canadian heritage; fisherman; Old timer</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Hank Jaques</td>
<td>Algonquin/French-Indian heritage; hunter; fisherman; Old timer</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Phil Brett</td>
<td>Forager; fisherman</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
</tr>
<tr>
<td>Diana Doll (DD)</td>
<td>Organic farmer</td>
<td>X</td>
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<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Pat Fitzgerald</td>
<td>Colchester intervale conventional farmer</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Amanda Andrews</td>
<td>Organic farmer</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
</tr>
<tr>
<td>Elizabeth Thompson</td>
<td>Ecologist</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Gale Lawrence</td>
<td>Naturalist; writer</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
</tr>
<tr>
<td>John Ewing</td>
<td>Conservationist</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tom Hudspeth</td>
<td>Professor</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Essays in sound

In order to explore practical ways to express and share place-based stories, I created a “sound map”, using audio stories produced from the oral history interviews. For this part of the project, I used an online mapping tool called Place Stories. Supported by the Australian government and administered by a nonprofit organization called Feral Arts, PlaceStories is an online mapping function that embeds multimedia stories (audio, text, videos, and images) into a Google Maps-based interactive map, allowing viewers to click on links to listen to (or view) stories. PlaceStories also incorporates some social media functionality, allowing members to join “communities” and “like”, comment on, and share projects.

Figure 26 Intervale Out Loud sound map. Each marker indicates the location of one or more stories.

Key themes and topics highlighted in the sound map include river movement, river change, land use change, development, flooding, fishing, “junkyard” and “hideout”, and “special places”; specific topics illustrated the relationship between people and the land
and agriculture. Stories were also produced that showed narrators' conceptions of the intervale, and what it – or specific places within the intervale – means to them, as well as narrators' visions for the future. Many of these stories reveal narrators' values, including productivity, community, and stewardship.

Figure 27: Intervale Out Loud home page. The “Stories” link directs viewers to a page where all of the audio stories are listed; the map in the upper left links to the sound map.

Each biophysical landscape layer is associated with a descriptive image, often a map, shown while the audio piece plays (for example, the “Soils” stories display a map of prime agricultural soils in the intervale). The ecological and cultural landscape layers
(Flora, Wildlife, and Human History) feature pictures of the subject of the story (for example, a walleye fish or fiddleheads). Limitations of the PlaceStories software prompted some creative placement of text to describe and contextualize the images, where necessary. Stories for the “Floods” layer include Stray Cat flower farmer Diana Doll talking about compelling images she remembers from flood events (including monoliths of river-borne ice in cornfields and pumpkins floating in floodwaters), and Colchester dairy farmer Pat Fitzgerald remembering the severe floods of 2011, when he and his sons had to use a boat to get to their cows for feeding and milking. The “River” layer features stories about how walleye fishing has changed since the 1930s, stories about river movement and unique natural communities, and fishing and meander scrolls at Half Moon Cove.

![Figure 28: Sound map story featuring John Ewing. Images associated with audio stories include current, historical, and aerial photographs as well as maps.](image)

The PlaceStories sound map is a primary result of this project, and can be viewed using this link: http://placestories.com/project/8328. The project page includes a list of
audio stories (along with images) associated with the “Intervale Out Loud” project, but my intention is for viewers to interact with the stories on the web-based map, preferably the satellite map (as with Google maps, there is also a street view). The interactive map links sound to place, allowing viewers to “get to know” the people through the sounds of their voices, and the place through the stories that they tell.
Intervale Out Loud Sound Map Outline

- Intervale Descriptions
  - Intervale as Indian Habitat: Hank Jaques
  - Intervale *inter vallum*: Liz Thompson
- Geology: Stephen Wright
- River
  - Ben Geese's island and Delta Park: Charlie Auer
  - Meander Scrolls: Phil Brett
  - Point Bar Beach: Liz Thompson
  - Old River Channel: Liz Thompson
- Flooding
  - Floods in all seasons: Pat Fitzgerald
  - Flood visuals: Diana Doll
- Soils
  - Pat Fitzgerald
  - Amanda Amada Andrews
  - Charlie Auer
- Flora
  - Floodplain Forest: Liz Thompson
  - Onions and Fiddleheads: Charlie Auer
  - Violets and Goutweed: Tom Hudspeth
- Wildlife
  - Hunting frogs: Charlie Auer
  - Fishing at Half Moon Cove: Charlie Auer
  - Fishing walleye: Hank Jaques
  - Bank swallows: Gale Lawrence
  - Otters: John Ewing
- Human history
  - The Beltline and Tafts Corners: Pat Fitzgerald
  - Intervale Road in the 1980s: Diana Doll
  - Conservation: John Ewing
  - Delta Park: John Ewing
  - Ethan Allen Homestead: John Ewing
  - Intervale Center: Tom Hudspeth
- Human history: Text postcards
  - Abair House
  - McNeil Generating Plant
  - Calkins Homestead
  - Intervale Conservation Nursery
  - Winooski Site
  - Gypsy Camp
Discussion

Oral History Methods

Oral history brims with possibilities for transdisciplinary work across the natural and social sciences, with story as a bridge. With its capacity for absorbing complexity (Leavy, 2011) and producing meaning (Portelli, 1981), oral history is well-positioned to explore and understand relationships with place, which are multi-faceted and complex, encompassing feelings, meanings, values, identity, and shared history. For this research, it produced landscape-based stories with narratives integrating cultural, physical and biological elements, offered insight into the values and meanings places hold for people, and yielded rich and detailed information useful for ecological and cultural landscape analysis. For students and practitioners of landscape planning, oral history could prove useful for incorporating meanings and values into planning processes, and it is a promising method for strengthening the social, cultural and historical analysis of landscapes.

In his book about traditional ecological knowledge, Sacred Ecology, Fikret Birkes relates a story about Ojibwe tribal resource managers who approached him for help in gathering information from tribal elders, distinguishing between “knowledge, the process” and “knowledge, the thing known” (Berkes, 2012, ixx). Daniel Boxberger’s point about ethnography applies in equal measure to oral history, “...[it] is not a static thing. It can be read different ways at different times. It is not a product that states the ultimate truth and is an endpoint, rather it is a process that is ongoing” (Boxberger, 2003). This understanding of knowledge as
a process rather than a product resonated with my research experience, which was as much – if not more – about learning the pitfalls and potential of oral history as the accumulation of content and information. And certainly the stories about the intervale produced from these oral histories are tied not just to a specific place, but to a particular time, post-Irene and the dramatic 2011 floods, charged with the threat of climate change.

Oral history's most salient characteristics —its open-endedness, the shared authority between narrator and interviewer, its subjectivity and focus on participants' memories, perspectives and storytelling, its dependence on the relationship between informant and researcher, and its aurality—point to its strengths as well as its limitations. “In theory (and in practice)”, as Portelli mischievously points out, “oral history can be about anything; open-endedness at all levels is one of its distinctive formal characteristics.” (Portelli, 1997, p. 6) This approach requires skill, attention and mental agility on the part of the interviewer, not only in quickly formulating substantive questions to elicit substantive information (and these questions might be wholly different for different people), but in directing the interview in order to craft a coherent and meaningful story. Open-ended interviews allowed space for unexpected issues, stories, and topics to surface, producing rich biographical, historical, and cultural context and storytelling. This open-ended quality of oral history was, by and large, incredibly useful for my research, as important contextual (e.g., the foundations of a person's relationship with nature and place, perspectives, and value systems) and thematic insights emerged (e.g., development, the Beltline).
However, multiple-session, long form interviews are very time-consuming, as is the emergent process of data analysis, and produce an intimidating amount of material.

Related to open-endedness is oral history’s commitment to shared authority, which stakes out space for the narrator to tell the stories that they want to tell. In my research process, this was often at the expense of the “information” I was interested in, but offered “thick description”, showing how narrators perceived themselves in the world (their social identity), what was important to them, and how their experiences shaped their perspectives. These insights were indispensable for identifying and contextualizing meanings and values. Hank Jaques’ hunting and fishing stories, often unrelated to the intervale, reveal that these practices are core to his identity, bound up with his deep sense of connection to nature and the outdoors, the traditions passed down through his family, his relationship with animals, and how he values wise resource use and management. These contextual “digressions” were also part of an important relationship-building process that involved getting to know narrators personally, listening to their stories, and, on the part of the participant, feeling heard. While oral history is deeply committed to the principle of shared authority, Portelli reminds practitioners not to get caught up in idealism, as “control of historical discourse remains firmly in the hands of the historian”, who selects participants, shapes testimony with their questions and reactions to answers, as well as publishing and shaping the meaning of the account (Portelli, 1997, p. 72).
Long form, multiple session, open-ended interviews can be time-consuming, exhausting, and inefficient. They can invite digressions, even in the hands of skilled interviewers. Despite the difficulties that the flexible, subjective nature of oral history and other qualitative methods may present, I found that the relationships I built – and the process of building them – was one of the most rewarding and stimulating aspects of my research. This process of relationship building is at the core of oral history, and the rapport between narrator and interviewer has a significant impact on results (Portelli, 1991). Relationships accrue over time, as trust is built and people make themselves known to each other; oral histories conducted over two or three sessions tended to be more interesting and productive, as well as more personally fulfilling for me as an interviewer and researcher. I grew “attached” to narrators, particularly Hank Jaques and Charlie Auer, who I interviewed two and three times, respectively, and spent the most time with (I spent nearly sixteen hours with Charlie Auer, all told).

I found the data and stories from Hank and Charlie particularly rich, perhaps influenced by a growing relationship and mutual trust over time, and my own growing interest in and attachment to these two men. I also found myself in a familiar role, as a listener and absorber of facts, ideas, and emotion. As Portelli points out, “Oral history is a listening art, and an art based on a set of relationships” (Portelli, 2005: between narrator and interviewer (dialogue), historical and present time (memory), public and private (history and story), and orality and the historian's writing. The relationships at play in oral history, many
of them personal, already had me thinking in terms of connections and complexity, and set the context for exploring relationships with place.

In contrast with landscape analysis, oral history is decidedly subjective, arising from the very personal relationship – even chemistry – between narrator and interviewer, and the perspectives, values, interests, and experience of the participants and the interviewer. “It is the researcher,” as Portelli points out, “who decides there will be an interview in the first place. Researchers often introduce specific distortions; informants tell them what they believe they want to be told, and thus reveal who they think the researcher is” (Portelli, 1991, p. 54). I brought to this project my own subjective agenda, including an interest in exploring Abenaki history and continuity of land use practices in the intervale and in “unearthing” untold or marginalized stories. The subjectivity of oral history methods extends to narrators and their stories as well: some are more eloquent, more insightful, more responsive, and more articulate than others, whether because of depth of experience, personality, or rapport with the researcher. While everyone has a story to tell, some are better storytellers than others. The researcher relinquishes impartiality, bringing their own set of assumptions and interests to the project and relying on sources that “enter the tale with their autonomous discourse” told from a multitude of ‘circumscribed points of view’ (Portelli, 1981, p. 106).

Narrators expressed different stories about the intervale, based on their perspectives, experiences and relationships with place: from Gale Lawrence and Tom Hudspeth we hear about the Intervale Center, with its roots in Lyman Woods’
Gardens for All; Hank Jaques and Charlie Auer talk about fishing and Depression-era subsistence values; John Ewing focuses on conservation; Liz Thompson on reading the intervall landscape and its ecological pieces, patterns, and processes; and farmers describe productive soils, floods, and seasonal agricultural practices. Portelli (1981, p. 100) argues that “Subjectivity is as much the business of history as the more visible ‘facts’”, and if landscape analysts are interested in place-based meanings and values, then the subjectivity of storytelling and oral history offers key insights.

**Contribution of Oral History to Landscape Analysis**

Oral history methods produce information about current and historic ecological conditions useful for land management and planning (eg., Colburn and Clay, 2011; Holmes and Pilkington, 2011; Mager, 2012), as well as benefits around public participation, values, and social context “fundamental to sound environmental decision-making” (Robertson and McGee, 2003). With its focus on subjectivity and diverse perspectives, oral history holds significant potential for place-based landscape analysis and programs like PLACE interested in producing an integrative and inclusive story of the ecological, cultural and physical landscapes. For example, fishing stories offer detailed ecological information about current and historic aquatic species and habitats and describe landscape and river changes. They also disclose values, including resource management and proper behavior, provide insight into river history and boating culture, and allude to how people value productivity and self-sufficiency.
While the strength of oral history methods may lie in exploring the multi-faceted cultural landscape and associated landscape of place-based meanings and values, the stories and information it produces also contribute to “objective” landscape analysis approaches that focus on the physical and ecological landscape. My research focused on the “layer cake” approach as an organizational framework, and oral histories offered important ecological information about ecological landscape layers, as well as significant contributions to the “last” landscape layers of human history and the future. The layer cake method, when well executed, draws out the interactions between layers (expressed in McHarg’s overlaying of maps to reveal the relationships between landscape components) by expressing them through story, engaging people in understanding landscapes via appealing narrative forms.

Storytelling relies on details—and on metaphor, simile, and other devices that bring forward connections, emphasize meaning, and illuminate relationship, I believe within this notion of people and place, story is the correspondence between the two. It informs our lives, it keeps things known. It’s the umbilical cord between past, present and future. Story identifies the relationships, and that's what is essential in the heart of good storytelling – and also a good nature walk – to be able to see those inherent relationships.

(Terry Tempest Williams, quoted in Taylor and Tallmadge 2009, p. 3)

Integrative layer cake stories are eloquently expressed in the stories that emerged about the lower Winooski intervale. The archeological finds of human history are embedded in the intervale's deep alluvial soils, the layers of rich human history paralleling the layers of rich soil (replete with the redoximorphic features
indicating soil saturation) deposited by floods. Silver maple-ostrich fern
floodplain forests, frequented by people foraging fiddleheads, is on the higher,
sandier levees of river banks, and Silver maple-sensitive fern forest is found on the
lower, wetter soils. Flood stories and development stories reveal the connection
between land use history and river channel movements and changes in flooding
regimes, as well as a slew of values about current and future relationships with the
land. The layer cake method integrates important elements from other landscape
analysis approaches, at its best building an integrative story based on a dynamic
timeline and drawing from the pieces, patterns and processes approach, to help us
to understand the answers to the what, why, and how questions embedded in the
landscape. For place-based landscape analysis efforts, the layer cake framework
offers wonderful opportunities to express and capture the relationships between the
human and the natural world that are at the core of sense of place through
storytelling.

The objective layer cake method has its limitations, especially for place-
based landscape analysis approaches. Ian McHarg's students' metaphorical
phrasing of the layer cake method as the “litany” (Spirn, 2000, p. 107) points to
some of its weaknesses. As McHarg's critics pointed out, the layer cake approach
is scientific rather than intuitive (Spirn 2000, p. 108), designed to reveal nature as
a “working storehouse” (McHarg, 1969, p. 127) and answer questions of land use
suitability, rather than to explore the vague and complex concept of “sense of
place”, and to express of the relationships between people and their environment.
The information produced can be extremely comprehensive, to the point of
missing the forest for the trees, reading like a landscape inventory or checklist of “pieces”. The method relies heavily on maps, which are certainly useful forms of visual storytelling, but may contribute to the risk of producing a catalog of features, rather than an integrative story shedding insight on the relationships between people and place. Along with analyzing maps of physical and biological features of the landscape, the layer cake method employs field methods, which often are utilized to produce further maps. Although McHarg's original intention was to “superimpose” these map layers in order to provide the baseline information for suitable land uses, the landscape layers are often described independent from each other, skimming over the analysis and interpretation that makes them useful. The stories that reveal the connections and relationships between the different landscape layers, bringing the landscape to life and giving it meaning, are often un- or undertold; similarly, the “human history” layer can seem like it's tacked on top of the other layers, and receives a cursory treatment drawn from mainstream histories. As cultural history is not the focus of the layer cake method, it often falls short as a means of revealing and expressing the rich interactions between people and place. Rarely do methods include talking to people, and exploring values and feelings about and experiences with the landscape.

Talking to people adds new layers of information that corrects assumptions and yields new conclusions, offering a different perspective on the context and completion of McHarg's statement, “The place is because...” (McHarg, 1969). Oral history's subjectivity—as well as its commitment to diverse perspectives—
offers “a different credibility”, telling us “less about events than about their meaning” (Portelli, 1991, p. 50). Charlie Auer's stories about development point to the usefulness of oral history in producing facts and subjective meanings, as well as extremely “thick” historical description about the social and cultural landscape, illustrating oral history’s potential for bringing forward integrative and inclusive stories.

One interesting site for exploring landscape history, change, and land use is Delta Park at the mouth of the river, now owned by the Winooski Valley Park District. As in nearby Derway Island (also owned by WVPD), much of the property is off-limits to recreation and other use because “it is so precious” (John Ewing). Charlie Auer remembers these sites from the 1930s, when Derway Island was Derway's farm (largely owned, in fact, by Professor Millington, who operated a silver fox fur farm there), and Delta Park was Ben Geese's Island. Charlie remembers Ben Geese, who used to camp out of his boat on the island to fish walleye during the season, from his childhood, “Somebody wanted to know where Ben was, because they come down a lot of times to buy fish off of him, they say, He's out on his island, so they called it Ben Geese's Island.”

Charlie's stories about landscape and river change are long, extremely complex (and difficult to follow) narratives involving an intricate cast of characters including neighbors, contractors, state and government officials (including Mr. Sanders, as Burlington's mayor), as well as conversations, dates, regulations, land transactions, and events, evidenced in the story that features Ben Geese's island, the fate of the railroad bridge, and the construction of the bike path,
They filled all this in. The whole thing, filled in. And my father was still alive then, and he said. You know, we get a load of dirt, and the Corps of Engineers gives us a letter, we're doing something we're not supposed to be doing. He says, They filled the wetland in over there. 'Course, after he died, the bridge – right here – they tore it down. OK. Mr Derway was still here when they donated the land – here – to..excuse me, where the bridge was, because that's where the road went through. They gave them the property. And he says, You know, over here, he says, Mr. Sanders took care of us here, we can't do nothing. But, he says, If we had some money, that bridge here is part ours, Charlie, because it butts our property. And, so, anyways. They got permits to do the whole thing but it flooded. And after it flooded, that's where they stopped the procedure, but they still owned the land, so they gave them the bridge, which was bought by Gillette Razor Company.7

Jeff Severson's (1988) Field Naturalist project, “Patterns and Causes of 19th and 20th Century Shoreline Changes on the Winooski Delta” details the shoreline changes at the river mouth, highlighting the retreat of the South Delta shoreline and the advance of the North Delta shoreline, which he ascribes primarily to changes in the sediment budget of the Winooski due to upstream dams and reforestation in the 20th century. Severson also discusses the influence of the railroad abutments, which confine the river channel at the mouth and act as a “hinge point” as the river approaches its final bend, and Ben Geese's island, which he concludes “eroded away” because of lake currents and wave action,

Between 1931 and 1987 the rivercourse narrowed by approximately 65 m where it passes between the railroad bridge abutments. By 1980 Ben Geese Island had eroded away; an extensive sand beach extended northwest from the former position of the island, and formed the southwestern and western shores of North Delta. This beach occupied the position of the former channel between Ben Geese Island and the North Delta mainland.

7Developers Kane and Burnett filled in Ben Geese's island. Charlie's story indicates that land for the bike path was taken by the city, probably through eminent domain. I am unclear on who donated the land to whom. In another story, Charlie says that the Winooski Valley Park District purchased the land.
While Severson mentions some of the river mouth development projects (the railroad bridge removal, leveling of sand dunes south of Porter's Point for housing, the fishing access area), they are not explored as sources of changes in delta configuration or river channel movement. Charlie, on the other hand, talks about how the river was filled, and the channel thus narrowed, by contractors in order to facilitate the railroad bridge removal (the abutments remained), and describes how the abutment now at the southern edge of the riverbank was once in the center of the river. As Charlie's earlier story indicates, Ben Geese's island did not “erode away” but was filled by developers in the 1960s,

But, when I was a kid, on this side over here, there was only 10' of dirt. We went across the bridge and walked out on that dirt, and there was water on both sides...We used to go up here out front, we used to call this Ben Geese's Island, and there was a waterway through that. We used to go through there, and it was deep--25' deep and about 60' wide, and we'd go through there, with the motors. They filled all that in too...Yeah, that was an island. They filled in out here; they took from here out, 50 acres more or less, filled all this in, and they put a road in from here over here to the Colchester side. These houses were never there. They are now. But this is all filled land right now. On both sides....They filled it. They made it into one. And out here, beyond this, was a great big sandbar that came out here. We had to go across this little delta here, come to Ben Geese's Island, and then come here and go across another 50 or 60 feet that was over our head. And the sandbar came way out here and around in front over here. Way back...This used to go right through there. This was all water.

After a long, detailed and complex discussion about land use history and development at the river mouth, Charlie concludes, “Changes in the river, that's all your interval. All the way down through here, this has changed.” The story about
Figure 29: August 1937 aerial photograph, showing Ben Geese's island, a sandbar, and the railroad bridge. Charlie Auer's property is on the left (west) of the railroad, south of the river mouth.

Figure 30: April 1988 aerial photograph. Ben Geese's island no longer exists, and the railroad bridge has been removed.
Ben Geese's island also includes the cultural history of fishing and boats at the river mouth, stories about houseboats at the river mouth, pike skiff boat-builders, and Ben Geese himself, who camped on the island, cooked with a tin can held by a Y-shaped stick, and sold walleye out of his boat and to the synagogue in the Old North End.

Ben Geese's island is embedded in a larger story of development and social history at the river mouth. As lake waves erode three acres of his land and “no one will let me do anything about it”, he watches developers Kane and Burnett fill Ben Geese's island, the railroad buttress its banks every spring with Vermont marble, and the state allow contractors to fill in the river to remove the old railroad bridge. While he's not permitted to maintain the sea wall his father built, those with money and connections—or the state itself—can evade regulations and move land around. These stories describe history and also Charlie's experience of it, revealing his values, particularly relating to private property and economic and social justice, “I don't think it's right. I don't think we've been treated right.”, “They care less about the people. You can lose all your land, but you can never rebuild it. You can never.”, “And my father says, you know, I don't why they treat us different. And somebody says, That's because you don't have any money...”

As the different narratives about Ben Geese's island and Delta Park indicate, incorporating diverse perspectives offers a “more democratic history”, rich with nuance, complexity, and context. Charlie scoffs at the idea of Delta Park as a pristine natural area; for him, it's a symbol of development, and how people
with money, power, and connections can evade regulations, especially around bringing fill to riverside lands, that others (like the Auers and the Fitzgeralds) on the river must abide by. For John Ewing, Delta Park is one of jewels of the Winooski Valley Park District's holdings,

Delta Park, from a wildlife and ecological standpoint, is apparently very, very important. Birders go there continuously. This is not my field, but I guess there's some flora there, the remnants of a different age that still exist there. They try very hard not to have people walk in there...

Portelli would say that whether or not Charlie's story about Ben Geese's island is “true”, his experience and feelings are valid (and valuable) historical facts in and of themselves. Relying on memory and subjective perspectives, oral history may be fallible, but it draws out the stories that reveal the many meanings of places, the connections people have to them, and the values associated with them.

These stories and feelings representing the experience of “everyday” (and poor) people occur within the broader context of development and social history in Burlington and beyond. They also encompass the French-Indian experience, as, like Charlie Auer, many of the families at the river mouth have French-Indian heritage. Abenaki historian and basketmaker Judy Dow describes the Abenaki relationship with the intervale, as well as the traumatic history of institutional oppression they faced. This included Abenaki family bands – the nomadic “gypsies”, “river rats” living at river mouths, and the “pirates” living on houseboats – who were targeted by the Vermont Eugenics survey (Couzelis, 2013; Dow, 2013), as well as families (including Dow's) who lived in the Old North End,
This road backs up to the Intervale in Burlington, a huge, open natural area, a place where the people on the Square hunted and fished, burned the land each year and harvested various nuts and berries...Most of the people recorded in the survey lived along the Intervale and Lake Champlain in Burlington. Burlington's wealthy wanted more from this beautiful location than a home for the city's poor; they wanted their scenic view. Time and time again, they went back to the same addresses, institutionalizing families and breaking them up.

(Judy Dow, University of New Hampshire, 2014)

Dow tells another story of a French-Abenaki “gypsy camp” that was forcibly removed from the plateau above the Burlington Intervale to make way for a city ballpark at the turn of the 19th century. Frederick Wiseman points out (corroborated by Phil Brett's discussion of “passing” among the Abenaki, often as French or French-Canadian, Senier, 2010; Couzelis, 2013), that there were five options for Abenaki people at that time: “(1) exile, (2) fade into the forests and marshes, (3) live the “Gypsy”/”Pirate”/River Rat” life between Native and European culture, (4) merge with the French community, (5) “pass” into English-American society” (Wiseman, 2001, p. 115). Although veiled, French-Indian history and the continuity of land use practices are deeply embedded in the intervale's cultural landscape, offering a distinct and important “decolonized” history of indigenous stories, cultural practices, meanings, and values that express deep time relationships with the intervale.

In Charlie Auer's stories, the intervale emerges as the site of a deep and complex network of people and relationships, connected to each other through family ties and mutual support, exemplified in the “iconic story” of his mother's garden cart and her soup kitchen at the river mouth. This understanding of the intervale as a series of relationships as well as a geographical place evokes the
Abenaki metaphor of the “common pot” demarcating Native space, a “network of relations and waterways” that sustains – and is sustained through – Native (and ecological) communities (Brooks, 2008, p. 3). The common pot is fully expressed in the “fertile bowls” and “deeply situated social and ecological environments” of the wolhanak, the river intervales that nourished Abenaki families (Brooks, 2008, p. 5). Hank Jaques’ imagining of the intervale as Indian habitat recalls the common pot, “...you've got the fish, you've got the river, you've got the land, you've got...everything. You wouldn't have anything to want.” At the end of our interviews, when I asked if Charlie had anything to add, his comments evoke the common pot (and its disruption by issues of land ownership),

The only thing is, years ago, the people depended on the river for fish. They fish, now, they go, in the spring they get walleyes, but not like they used to. Years ago, they used to depend on it for their livelihood. The intervale and the river. The intervale was for trapping, or whatever they could pick off the shore to eat. Most places they can't do that anymore. They don't have access to the intervale like they used to.

Charlie's stories and conception of the intervale reveal values of productivity, interdependence, and community, expressed by many narrators, which offer additional meanings when understood in the context of his Algonquin heritage and the common pot. “So many people”, as ecologist Elizabeth Thompson remarked, “think that the intervale is where Gardener's Supply is, that's what the intervale is, when there's this huge vast landscape...” that carries many more meanings. Exploring subjectivity and a diversity of perspectives through oral history supports deep and integrative storytelling about place, and an inclusive analysis of the cultural landscape.
Place-based stories can be used as tools to re-imagine places, “namely, to understand and to orient the evolutionary dynamics connected to the life of place, involving an open and more inclusive reflection on identity, history, and ecology.” (Iovino, 2012, p. 100). Stories do a lot, piquing the curiosity, compassion, and imagination that leads to knowing – and loving – places. As Scott Sanders writes in his essay “The Power of Stories”, stories of place provide vantage points for looking out on the land, and nourish “the affectionate, imaginative bond between person and place” needed for living in ecological balance on the land (Sanders, 1997, p. 122). Phil Brett relates a story about Charlie, describing interactions with Southeast Asian community members, who “come down and will break a frog’s legs”, perhaps to slow it down to use for bait. Phil says that Charlie “gets very upset and says that's not allowed” (“they” includes other old-timers of his generation),

They still have a land ethic that goes over and above the average person I run into on a daily basis. They have a respect for the land; they have an expectation for how it should be treated. They value--they won't--when they know something's poisonous, and they know that will impact, say, the frogs or the toads that come on to their land, they won't use it. They know that the frogs are valuable; that they serve a purpose; and that they cut back the mosquito population. They can remember cycles when the frog population for whatever reason had plummeted, and the mosquitoes got worse. They know how the basic ecology works of where they live, and they have great respect for it, and they will reprimand people if they don't feel that people are treating the land properly. I mean, you don't kill a frog. You don't kill a frog--no way.

Along with maintaining (and restoring) connections to place, stories emphasize interdependent relationships and offer moral instruction about ethical social and ecological behavior. For programs like PLACE interested in deepening relationships
between people and place and reintegrating people and the land in meaningful ways (Poleman, 2010), oral history is a valuable method for exploring the “landscape of values and stories that intersects with the landscape of people and places” (Iovino, 2012, p. 103).

**Place resounding**

The aurality of oral history is one of its unique and distinct advantages and cannot be overlooked. *Listening* to stories is a different experience than reading stories, as sound carries descriptive information like accents, tone, rhythm, velocity, pauses, breaths, volume (Portelli 1981, p. 98; McHugh 2012 p. 36) and silences. The very *sound* of a person's voice and vocal patterns describes who they are and conveys emotion, revealing meanings muted (or, worse, misrepresented) in textual representations and transcripts. Sound is a story in and of itself, and establishes a vivid and personal presence, that, like stories, connects people on a fundamental (and fundamentally emotional) level.

However, as Tom Hudspeth pointed out, few people will take the time to go to archives like the Vermont Folklife Center and listen to hours of oral histories; extracting (or producing) audio stories and sharing them is yet another tool to enliven connections to place.

Place-based oral history projects could result in soundscapes, sound maps, soundwalks, and other forms of acoustic expression that document and express the relationships between people and the landscape. Collecting sound and stories presents opportunities for “assets-based” community collaborations and activism that draw on community strengths and distinctive qualities, including citizen storytelling, public listening sessions, and university service learning projects (Makagon, 2009). Sound maps
like the one produced for this project makes the content of oral histories accessible, and are an appropriate means for engaging people in exploring and expressing the many dimensions of landscapes, including their unique sonic properties.

Cities around the world have sound maps, including New York, Montreal, Barcelona, and Belfast. On Paris’ sound map, “Ecouter Paris”, you can listen a man hawking the daily newspaper, the church bells of Notre Dame, ferry boats disembarking on the Seine, and a community musical “happening”. These sounds convey an immediate and extraordinary sense of place. Naturesoundmap.com presents natural sounds from around the world: nightingales in Spain, rhinoceros in Indonesia, a desert windstorm in Chile. The Sitka, Alaska low power radio station plays whale sounds from an underwater microphone 24 hours a day, seven days a week. These projects indicate the promising and information-rich (and fun) possibilities for engaging with landscape aurally. Any birder will tell you that aural perception and identification of bird songs is often more critical than visual perception, especially in the forest, where songbirds flit quickly and are difficult to see (much less identify visually) among the leaves. With a more finely sensitive ear and actively listening mind, perhaps we'd have the sonic acuity to identify tree species as the breezes pass through them:

To dwellers in a wood almost every species of tree has its voice as well as its feature. At the passing of a breeze the fir trees sob and moan no less distinctly than they rock; the holly whistles as it battles with itself; the ash hisses amid its quiverings; and beech rustles while its flat boughs rise and fall. And winter, which modifies the note of such trees as shed their leaves, does not destroy its individuality."

(Thomas Hardy, Under the Greenwood Tree, 1920, quoted in Westerkamp 1974)
Paralleling the capacity for stories and storytelling to enliven imagination, forge connections, and draw out relationships, sound is relational, interactive, and participatory: it surrounds us, envelops us, offering a “sense of presence and immediacy that places the listener in a scene.” (Makagon 2009, p. 12). Like oral history, sound is “inherently subjective”; vision is inherently detached and objective (Sui, 2000, p. 335). Western understandings of landscapes are based on visual perception; while perceiving and analyzing landscapes, we treat them as “‘text’ for us to read.” (Duncan, 1990, quoted in Sui, 2000, p. 323). In her poem “The Map”, published in 1946, Elizabeth Bishop points to the limitations of static visual images like maps to express landscapes,

Land lies in water; it is shadowed green.
Shadows, or are they shallows, at its edges
showing the line of long sea-weeded ledges
where weeds hang to the simple blue from green.
Or does the land lean down to lift the sea from under,
drawing it unperturbed around itself?
Along the fine tan sandy shelf
is the land tugging at the sea from under?
…Mapped waters are more quiet than the land is,
lending the land their waves’ own conformation...

(Bishop 1983, p. 3)

As Bishop indicates, images and text quiet the dynamic (and sonic) properties of landscapes.

In the intervale, the natural sounds of the river and birds intermingle with the sounds of tractors (tractor implements often have distinctive sounds, especially the huge mowing equipment), F16s, gunshots, chainsaws, riprap dumping, motorboats, commercial airplanes, runners and their dogs, bees, greenhouses, and sprinkler systems. These sounds describe a great deal about how people interact with the land and the river (hunting, farming, dumping in the river, recreating...). Tuning into sound is part of the
place-making process whereby environments take on meaning and become places, “places with particular atmosphere, feeling, ambience” (Pocock, 1989, p. 184). Sound also engages with political and environmental justice issues: working daily in the intervale, far and away the loudest, most striking and overwhelming (and almost terrifying) sound is that of the F16 fighter planes, which fly over the intervale every morning.

While this project focused on people and their stories, I am keenly attuned to the possibilities of sound for expressing sense of place. It has been said that the shortest distance between two people is a story, and the interpersonal connections produced by stories is deeply intertwined with the act of listening. “Touch,” as Michael Schafer points out, “is the most personal of the senses”, and, with its dependence on physical vibrations, “hearing is a way of touching at a distance” (Schafer, 1977, p. 11). Just as stories stimulate relationship, attending to the soundscapes embedded in landscapes enriches the potential for connecting intimately with place.
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Appendix A: Oral History Release Form

Intervale Out Loud: A Place-Based Oral History Project

ORAL HISTORY RELEASE FORM

Thank you for agreeing to share your story with the Intervale Out Loud Oral History Project. This project is a part of research to fulfill requirements for a graduate degree in Natural Resources at the University of Vermont. The purpose of this research is to document the lower Winooski intervale, and to understand what kinds of information oral histories can generate about land and landscapes. This oral history will be archived with the Vermont Folklife Center, and will be publicly available for use by researchers and the public, unless you indicate otherwise. Your name will be attached to your interview and you may be cited directly or indirectly in subsequent researchers’ unpublished or published work. The interviewer affirms that she has explained the nature and purpose of this oral history project. The narrator affirms that he/she has consented to this interview.

I consent to the following uses for my oral history interview:
- Archive in the Vermont Folklife Center: ________________________ Yes ___ No ___
- Audio/written transcripts available to the public: ________________________ Yes ___ No ___
- Access by qualified researchers: ________________________ Yes ___ No ___
- Publication in electronic form (eg., podcast on a website): ________________________ Yes ___ No ___
- With written permission: ________________________ Yes ___ No ___
- Publication, duplication, or other non-profit use of this audio interview by the Coordinator of the Intervale Out Loud project, Kate Blofson: ________________________ Yes ___ No ___

I request the opportunity to review & revise the transcripts of my interview: ________________________ Yes ___ No ___

Other restrictions as detailed herein:

Interviewer: ________________________ Date: ________________________
Narrator: ________________________ Date: ________________________
Print Name: ________________________ Date of Birth: ________________________
Address: __________________________________________________________
Telephone: ________________________ Email: ________________________

Any questions may be directed to the Kate Blofson, (415) 323-8945 or kblofson@uvm.edu
Appendix B: Invitation Letter

Intervale Out Loud: A Place-Based Oral History Project

Date:

Dear

My name is Kate Blofson, and I am a graduate student in Natural Resources at UVM, and have taken classes in the Field Naturalist program for 2 years. I am writing to you because I am conducting an oral history study about the lower Winooski intervale. Oral histories are life stories focusing on personal knowledge and experience; they are conversational, and questions are often open-ended. I often start by asking where you are from. While I am particularly interested in land use and agricultural practices and history; ecological information and site-specific stories; relationships with plants and animals; and values and feelings about the land, oral history is collaborative, and we can talk about other things, as well.

Should you choose to participate, your participation is completely voluntary and you are free to change your mind and stop your participation at any time. I would set up a time to interview you, lasting 60-90 minutes; we could set up follow up interviews, as well. I would work around your schedule, and the interviews could be held in your home, or in another location of your choice; I would also be interested in walking or driving around the intervale with you. The interviews will be recorded, and archived with the Vermont Folklife Center, according to your wishes.

I can be reached at (415) 323-8945, or kblofson@uvm.edu, to answer any questions that you may have. I will follow up soon with a phone call to see if you are interested in learning more or participating in this oral history project.

Thank you!

Kate Blofson
## Appendix C: Potential Narrators List

<table>
<thead>
<tr>
<th>Narrator</th>
<th>Perspective</th>
<th>Stories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Judy Dow</td>
<td>Abenaki; historian; family &amp; ancestral ties</td>
<td>Gypsy camp; Abair House; firetower; floodplain &amp; agriculture</td>
</tr>
<tr>
<td>John Crock</td>
<td>Scientist</td>
<td>Winooski Site: food finds</td>
</tr>
<tr>
<td>Charlie Auer</td>
<td>At the river mouth</td>
<td>fishing; Great Depression; foraging; land ethic (frogs); river mouth changes; houseboats; river rats; “natural areas”; boats &amp; boating; plants &amp; uses;</td>
</tr>
<tr>
<td>Phil Brett</td>
<td>Forager</td>
<td>grandfather, son Ian, wife Andrea, her family, Abenaki cultural pieces, eugenics, ONE, Charlie Auer, foraging</td>
</tr>
<tr>
<td>John Ewing</td>
<td>Conservation/stewardship/colonial history</td>
<td>Ethan Allen Homestead, colonial history</td>
</tr>
<tr>
<td>Tom Hudspeth</td>
<td>Natural history, walking</td>
<td>Dog walking, violets &amp; goutweed, intervale center recent history</td>
</tr>
<tr>
<td>Pat Fitzgerald</td>
<td>Farmer; Burlington-Colchester intervale; family history</td>
<td>Soils, on the farm, dairying, pasture, neighboring farmers, Land use history, land ownership</td>
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<tr>
<td>Diana Doll (DD)</td>
<td>Farmer; Burlington Intervale; flowers</td>
<td>intervale “first farmers”; perennials in wetlands</td>
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<tr>
<td>Elizabeth Thompson</td>
<td>Scientist; love</td>
<td>Silver Maple-Ostrich Fern floodplain forest</td>
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<td>Amanda Andrews</td>
<td>Farmer; Burlington-Colchester intervale; water</td>
<td>Route 127, beavers, flooding</td>
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<td>Gale Lawrence</td>
<td>Natural history, forage/hunt</td>
<td>&quot;Living off the land&quot;; becoming a naturalist</td>
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<td>Hank Jaques</td>
<td>Hunter; French Abenaki</td>
<td>Hunting in uplands; duckhunting in marshes by St Albans; daily hunting drive-bys; intervale site stories; hunting stories;</td>
</tr>
<tr>
<td>Name</td>
<td>Occupation</td>
<td>Notes</td>
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<tr>
<td>Dylan Zeitland</td>
<td>Farmer; Burlington Intervale</td>
<td>cooking stories; Intervale as Indian habitat</td>
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<td>Dale Schiccitano</td>
<td>Trapper</td>
<td>Muskrats, beaver, otter</td>
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<tr>
<td>Jeff Senesac</td>
<td>Farmer; Burlington-Colchester Intervale; family history</td>
<td>Flooding, river changes</td>
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<td>Brent Senesac</td>
<td>Farmer; Burlington-Colchester Intervale; family history</td>
<td>worked for Rena Calkins</td>
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<td>AALV</td>
<td>Farmer; Burlington Intervale; new immigrant</td>
<td>Farms for new americans; growing rice</td>
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<td>Chudra</td>
<td>Farmer; Pine Island</td>
<td>Vermont Goat Collaborative</td>
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<td>Arms family</td>
<td>Intervale farmer; old timer</td>
<td>David died recently, but his wife and children are still around</td>
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<tr>
<td>Ian Worley</td>
<td>Aerial; scientist</td>
<td>FROM ABOVE Old river meander? (Colchester), gravel sandbar in EAH after 1927 flood</td>
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<td>Gravel Pit Operator</td>
<td>Extraction; heavy machinery</td>
<td>Gravel pit on Mallet's Bay Road; bedrock geology; sands?</td>
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<td>Stephen Wright</td>
<td>Scientist; deep time</td>
<td>Monkton quartzite; Bedrock feature north of Pine Island swamp? River meanders through sand</td>
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<td>Mike Ather</td>
<td>Forager</td>
<td>Jerusalem artichokes, foraging</td>
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<td>Teage O'Connor</td>
<td>Naturalist</td>
<td>Ostrich fern forest garden; salmon hole ripples and critters, streambeds; salmon hole to delta park; river features; eating mussels</td>
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<tr>
<td>Steve Fiske</td>
<td>Scientist</td>
<td>River channel changes, sediment</td>
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<td>Julie Rubaud</td>
<td>Farmer; Burlington Intervale</td>
<td>Old Digger, lived at Calkins Homestead, Red Wagon Plants</td>
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<tr>
<td>Name</td>
<td>Occupation/Location</td>
<td>Organization/Location</td>
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<td>--------------------------</td>
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<tr>
<td>Andy Jones</td>
<td>Farmer; Burlington Intervale</td>
<td>Intervale Community Farm</td>
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<tr>
<td>S’ra Desantis</td>
<td>Farmer; Burlington Intervale; academic</td>
<td>Digger’s Mirth</td>
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<tr>
<td>Hilary Martin</td>
<td>Farmer; Burlington Intervale</td>
<td>Digger’s Mirth</td>
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<td>Thomas Case</td>
<td>Farmer; Burlington Intervale</td>
<td>Arethusa Farm</td>
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<td>Becky Madden</td>
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<td>Josh</td>
<td>Farmer; Burlington Intervale</td>
<td>Open Heart Farm</td>
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<tr>
<td>Adam Hausman</td>
<td>Farmer; Burlington Intervale</td>
<td>Adam's Berry Farm</td>
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<tr>
<td>Many other Intervale farmers</td>
<td>Farmer; Burlington Intervale</td>
<td>Half Pint, Besteyfield, ICF, Arethusa, Digger’s, Sugarsnap, Stray Cat...</td>
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<td>Ms. Bell</td>
<td>John Ewing’s neighbor; has lived there forever</td>
<td>Catching a sturgeon, fishing from the river shore</td>
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<td>Cathy [Bawler]</td>
<td>River’s End Marina</td>
<td>Hank Jaques, John Ewing, Charlie Auer</td>
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<td>Ron [Krupp]</td>
<td>Community gardener</td>
<td>Tommy Thompson Community Gardens</td>
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<td>Alicia Daniel/Matt Kolan/Sue Morse</td>
<td>Natural history; tracking</td>
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<td>Luke Willard</td>
<td>Abenaki; farmer</td>
<td>Fish mound agriculture in the Lamoille Valley</td>
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<td>Jennifer Ely</td>
<td>Conservation/stewardship</td>
<td>Winooski Valley Park District Director</td>
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<td>Dan O’Neil</td>
<td>Historical interp</td>
<td>Ethan Allen Homestead &amp; Museum; Ethan Allen Trust director</td>
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<td>John Irving</td>
<td>Extraction/energy production</td>
<td>Directory, McNeil Generating Plant</td>
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<td>Rob Rock</td>
<td>Farmer; Burlington Intervale farm hacker</td>
<td>Farm Hack; Pitchfork Farm</td>
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<td>Glenn MacRae</td>
<td>Intervale Center</td>
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<td>Sona Desai, Beautiful Bobby</td>
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<tr>
<td>Name</td>
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<td>Travis Marcotte</td>
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<td>History of the Intervale Center, food systems model</td>
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<td>EAH ED</td>
<td>Ethan Allen Homestead &amp; Museum</td>
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<td>Allan Strong</td>
<td>Scientist</td>
<td>Multi-functional Landscape</td>
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<td>Ernesto Mendez</td>
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<td>Old deltas, sands: Champlain Sea &amp; Lake Vermont</td>
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<td>Jim Andrews</td>
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<td>Charlebois</td>
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<td>Concrete</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tim Laird</td>
<td>Early ICF Farmer</td>
<td>Early CSAs; transition to organic agriculture; tractor driving over train bridge after driving through wall of community barn</td>
</tr>
</tbody>
</table>
Appendix D: Oral History Principles and Standards

General Principles for Oral History

Oral history is distinguished from other forms of interviews by its content and extent. Oral history interviews seek an in-depth account of personal experience and reflections, with sufficient time allowed for the narrators to give their story the fullness they desire. The content of oral history interviews is grounded in reflections on the past as opposed to commentary on purely contemporary events.

Oral historians inform narrators about the nature and purpose of oral history interviewing in general and of their interview specifically. Oral historians insure that narrators voluntarily give their consent to be interviewed and understand that they can withdraw from the interview or refuse to answer a question at any time. Narrators may give this consent by signing a consent form or by recording an oral statement of consent prior to the interview. All interviews are conducted in accord with the stated aims and within the parameters of the consent.

Interviewees hold the copyright to their interviews until and unless they transfer those rights to an individual or institution. This is done by the interviewee signing a release form or in exceptional circumstances recording an oral statement to the same effect. Interviewers must insure that narrators understand the extent of their rights to the interview and the request that those rights be yielded to a repository or other party, as well as their right to put restrictions on the use of the material. All use and dissemination of the interview content must follow any restrictions the narrator places upon it.

Oral historians respect the narrators as well as the integrity of the research. Interviewers are obliged to ask historically significant questions, reflecting careful preparation for the interview and understanding of the issues to be addressed. Interviewers must also respect the narrators’ equal authority in the interviews and honor their right to respond to questions in their own style and language. In the use of interviews, oral historians strive
for intellectual honesty and the best application of the skills of their discipline, while
avoiding stereotypes, misrepresentations, or manipulations of the narrators’ words.

Because of the importance of context and identity in shaping the content of an oral
history narrative, it is the practice in oral history for narrators to be identified by name.
There may be some exceptional circumstances when anonymity is appropriate, and this
should be negotiated in advance with the narrator as part of the informed consent process.

Oral history interviews are historical documents that are preserved and made accessible
to future researchers and members of the public. This preservation and access may take a
variety of forms, reflecting changes in technology. But, in choosing a repository or form,
oral historians consider how best to preserve the original recording and any transcripts
made of it and to protect the accessibility and usability of the interview. The plan for
preservation and access, including any possible dissemination through the web or other
media, is stated in the informed consent process and on release forms.

In keeping with the goal of long term preservation and access, oral historians should use
the best recording equipment available within the limits of their financial resources.

Interviewers must take care to avoid making promises that cannot be met, such as
guarantees of control over interpretation and presentation of the interviews beyond the
scope of restrictions stated in informed consent/release forms, suggestions of material
benefit outside the control of the interviewer, or assurances of an open ended relationship
between the narrator and oral historian.

**Best Practices for Oral History**

**Pre-Interview**

1. Whether conducting their own research or developing an institutional project, first time
interviewers and others involved in oral history projects should seek training to prepare
themselves for all stages of the oral history process.

2. In the early stages of preparation, interviewers should make contact with an
appropriate repository that has the capacity to preserve the oral histories and make them
accessible to the public.
3. Oral historians or others responsible for planning the oral history project should choose potential narrators based on the relevance of their experiences to the subject at hand.

4. To prepare to ask informed questions, interviewers should conduct background research on the person, topic, and larger context in both primary and secondary sources.

5. When ready to contact a possible narrator, oral historians should send via regular mail or email an introductory letter outlining the general focus and purpose of the interview, and then follow-up with either a phone call or a return email. In projects involving groups in which literacy is not the norm, or when other conditions make it appropriate, participation may be solicited via face to face meetings.

6. After securing the narrator’s agreement to be interviewed, the interviewer should schedule a non-recorded meeting. This pre-interview session will allow an exchange of information between interviewer and narrator on possible questions/topics, reasons for conducting the interview, the process that will be involved, and the need for informed consent and legal release forms. During pre-interview discussion the interviewer should make sure that the narrator understands:

* oral history’s purposes and procedures in general and of the proposed interview’s aims and anticipated uses.

* his or her rights to the interviews including editing, access restrictions, copyrights, prior use, royalties, and the expected disposition and dissemination of all forms of the record, including the potential distribution electronically or on-line.

* that his or her recording(s) will remain confidential until he or she has given permission via a signed legal release.

7. Oral historians should use the best digital recording equipment within their means to reproduce the narrator’s voice accurately and, if appropriate, other sounds as well as visual images. Before the interview, interviewers should become familiar with the equipment and be knowledgeable about its function.

8. Interviewers should prepare an outline of interview topics and questions to use as a guide to the recorded dialogue.
Interview

1. Unless part of the oral history process includes gathering soundscapes, historically significant sound events, or ambient noise, the interview should be conducted in a quiet room with minimal background noises and possible distractions.

2. The interviewer should record a “lead” at the beginning of each session to help focus his or her and the narrator’s thoughts to each session’s goals. The “lead” should consist of, at least, the names of narrator and interviewer, day and year of session, interview’s location, and proposed subject of the recording.

3. Both parties should agree to the approximate length of the interview in advance. The interviewer is responsible for assessing whether the narrator is becoming tired and at that point should ask if the latter wishes to continue. Although most interviews last about two hours, if the narrator wishes to continue those wishes should be honored, if possible.

4. Along with asking creative and probing questions and listening to the answers to ask better follow-up questions, the interviewer should keep the following items in mind:

   • interviews should be conducted in accord with any prior agreements made with narrator, which should be documented for the record.

   • interviewers should work to achieve a balance between the objectives of the project and the perspectives of the interviewees. Interviewers should fully explore all appropriate areas of inquiry with interviewees and not be satisfied with superficial responses. At the same time, they should encourage narrators to respond to questions in their own style and language and to address issues that reflect their concerns.

   • interviewers must respect the rights of interviewees to refuse to discuss certain subjects, to restrict access to the interview, or, under certain circumstances, to choose anonymity. Interviewers should clearly explain these options to all interviewees.

   • interviewers should attempt to extend the inquiry beyond the specific focus of the project to create as complete a record as possible for the benefit of others.
• in recognition of the importance of oral history to an understanding of the past and of the cost and effort involved, interviewers and interviewees should mutually strive to record candid information of lasting value.

5. The interviewer should secure a release form, by which the narrator transfers his or her rights to the interview to the repository or designated body, signed after each recording session or at the end of the last interview with the narrator.

Post Interview

1. Interviewers, sponsoring institutions, and institutions charged with the preservation of oral history interviews should understand that appropriate care and storage of original recordings begins immediately after their creation.

2. Interviewers should document their preparation and methods, including the circumstances of the interviews and provide that information to whatever repository will be preserving and providing access to the interview.

3. Information deemed relevant for the interpretation of the oral history by future users, such as photographs, documents, or other records should be collected, and archivists should make clear to users the availability and connection of these materials to the recorded interview.

4. The recordings of the interviews should be stored, processed, refreshed and accessed according to established archival standards designated for the media format used. Whenever possible, all efforts should be made to preserve electronic files in formats that are cross platform and nonproprietary. Finally, the obsolescence of all media formats should be assumed and planned for.

5. In order to augment the accessibility of the interview, repositories should make transcriptions, indexes, time tags, detailed descriptions or other written guides to the contents.

6. Institutions charged with the preservation and access of oral history interviews should honor the stipulations of prior agreements made with the interviewers or sponsoring institutions including restrictions on access and methods of distribution.
7. The repository should comply to the extent to which it is aware with the letter and spirit of the interviewee’s agreement with the interviewer and sponsoring institution. If written documentation such as consent and release forms does not exist then the institution should make a good faith effort to contact interviewees regarding their intent. When media become available that did not exist at the time of the interview, those working with oral history should carefully assess the applicability of the release to the new formats and proceed—or not—accordingly.

8. All those who use oral history interviews should strive for intellectual honesty and the best application of the skills of their discipline. They should avoid stereotypes, misrepresentations, and manipulations of the narrator’s words. This includes foremost striving to retain the integrity of the narrator’s perspective, recognizing the subjectivity of the interview, and interpreting and contextualizing the narrative according to the professional standards of the applicable scholarly disciplines. Finally, if a project deals with community history, the interviewer should be sensitive to the community, taking care not to reinforce thoughtless stereotypes. Interviewers should strive to make the interviews accessible to the community and where appropriate to include representatives of the community in public programs or presentations of the oral history material.
Appendix E: Sample Interview Questions

Family history:
- Where are you from?
- What is your connection to the intervale? How did you come to (farm, forage, hunt, fish, etc.) here?

Ecology:
- Can you tell me about the river and/or flooding? Can you tell me about your experience with floods? What have flooding patterns been like over the last 25 years? The last 5 years? What was flooding like after Tropical Storm Irene? What other floods do you remember?
- What kinds of wildlife are there in the intervale? In fields? Forests and hedgerows? What kinds of changes have you noticed in wildlife patterns or populations? How do they impact the land?
- Can you tell me about the soils here? What kind of variation of soil types do you experience? What kinds of plants do you encounter? What do you know about them?

Land Use Practices:
- What kinds of plants and/or animals do you use from the intervale? How do you use them? When do you gather them, and why then?
- Can you tell me about your farming practices? What is your land like? What are your soils like? Who were your mentors? Has the way that you have farmed changed over the years? How and why?
- Can you tell me about hunting, fishing, or trapping in the intervale? How did you learn about this?

Land Use/Landscape History:
- What was the land like (as far back as you can remember)? What kinds of crops were grown? When were they planted and harvested? How has land use and land ownership changed? What kind of development has there been?
- Can you tell me about the wetlands? How did people used to use these places and how are they being used now? Drainage ditches? What land has been drained, and what has returned to wetlands? What do you know about beavers in this area?
- What do you think will happen in the future? How will it impact the land? Can you tell me about your plans for the future? What are your visions for the future of this place? How do you think it should be managed?
- Can you tell me about places in the intervale that are particularly special to you? Are there any places that have stories attached to them?
Appendix F: Sample Interview Guide

Charlie Auer Interview Guide

Standard Questions

• Can you describe the intervale? What defines it for you, or stands out when you think about it? What was the intervale like when you first came here?
• Can you tell me about your first encounter with the intervale?
• What changes have you seen in the landscape? What are some of the most significant changes that you've seen?
• Can you tell me about a significant experience that you've had in the intervale?
  ◦ Can you tell me about places in the intervale that are particularly special to you?
  ◦ What stories come to mind? What people stand out that you can tell me stories about?
• What are your visions for the future?

Background information & family history

• Where are you from? How did your family come to Vermont? How did you end up here?
• Can you tell me about Charlie's boathouse? How did you decide to move there? Why have you never decided to leave?
• What was it like in the 1930s when you purchased it?
• What do you think about how things have changed?
• What's it like to live at the mouth of the river? What kinds of things do you see?
• Are there any places (or people) that have stories attached to them?
• What's it like to live in the same place for 80 years? How do you feel about the land? Do you know it like the back of your hand? What does that mean to you? What would you like to see happen to this land?

Topics

1930s/Depression

• What was life like? Which families lived here? How did people survive? What was the community like?

Foraging: food, medicine, for sale: What plants were really key and why? How did people learn the plants?

Hunting & trapping

Fishing
Ecology

Fishing: sturgeon, walleye, icefishing, bass, perch

- What is your favorite kind of fish to fish?
- What do you know about sturgeon in the river?
- Are there any particularly good spots? For what kind of fish? Why?
- Are there any skills or equipment that are particular to the Winooski?
- How have populations changed? What is your opinion of fishing regulations?
- What about boatbuilding? What is a pike skiff? What other kinds of boats are typical?

Foraging

Wetlands

Species

Recipes; medicines; other uses

favorites?

Hunting/trapping

Winooski River: How do people use the river? How is the river changing?

River morphology and channel changes (describe changes? what do you ascribe it to?)

Changes in the delta

How has the land changed around the delta?

What do you know about Delta Park? Derway Island?

Flooding; flood stories. Worst floods and why? Why does it flood?

What kinds of things come from upstream?

patterns; frequency; site specific impacts; impacts on farms; changes in flooding patterns?

History of this place

favorite stories/interesting people

culture & boating culture

"river rats"; houseboats

French-Abenaki use (John Ewing told me that there were people of French-Abenaki descent, particularly at the mouth of the river, who had been here for a long, long time).

land use & demographic changes

farms & farmers; land ownership; land use & cover; development

Howe Farm
Millington Farm, mink farm

Beltline

Burlington Intervale: can you tell me about it? What do you think about it?

Values/Visions

- Can you tell me about places in the intervale that are important to you? Where should I go? what places should I explore?
- What is it about this place that's important to you?
- What does this place mean to you?
- What do you think will happen here in the future?
- What are your visions for the future of this place? How do you think it should be managed?
Appendix G: Sample Interview Topics Log

Charlie Auer Interview Topics

Interview # 1

Burlington History
Old North End
Lakeview Terrace
North Street
Church Street
Places they used to go
Candy Kitchen
Upton's
Childhood jobs
LeFrance's Bowling Alley
Pop Brooks' Bowling Alley
Bicycles
Blodgett's
Parents
Father
Mother
Ethan Allen Skating Rink
Walking to Boathouse with garden cart
Visiting on the way
Hunt School gardens
Johnny LeFay (mother's cousin)
Rita McGraw (cooked at the orphanage)
[Weemet's]
Gardens where BHS is now (Lakeview Terrace chicken manure, planting by the moon, cold frames)
Washing at home
Baking 30-40 loaves of bread
Informal soup kitchen
Eroded land (3 acres)
North Avenue; Elbow Lane
Derway
Cabbages
Millington
Half Moon Cove
Derway's cut off
Cove Road
Mrs Bawler
Gin Grass Farm
Silver Fox Farm
Spalding's apple orchard
Mr. Vess (Haven Drive)
Winooski River Bridge (went out in '35 or '37)
Property near Half Moon Cove; right of way
Fitzgerald's; gardens; planted right down to the river
Central Vermont Rail Road
Rutland Railroad
Mr. Sanders
Mr. Pariso (owned land up from North Beach on both sides)
Supreme Court case over land (RR)
Buddy
Mr. Mazza
Parsons family
Andy Thibault
Brigante's
Lortimer's (stopped 10 years ago)
Beltline
Episcopal Church land
David Arms (BHS land swap)
Burlington Intervale
Mackenzie slaughterhouse
Ida Auer
Grandfather Benoit
Canada
Wooded lakeshore
Waterfront
Lumberyards
Depot Street/Gully Hill
Pease Grain Company
Maps
Burlington thick with woods
Intervale to Memorial Hall: Manhattan Dr/Low Road
5 Native American tribes
Intervale
Calkins sisters
River flooding; natural; never put anything on the ground
Derway's cabbages
Shooting pickerel (Arms)
Gove's the Florists
River contamination after Irene—new
Valleycat Houseboat
Brown Houseboat
Abenaki
Everbearing Onions
River change (Ida)
Army Corps of Engineers; authority
Private property
Regulations: picking wildflowers
Flooding; wind; currents; taking land out
Local Motion docks; wall
Jugs in the river
Mr. Fitzgerald (worked for the state)
Mr. [Zolott] (worked for the city)
Mr. [Pallin] worked for FEMA
Fill material; raising the road
Delta Park
Burnett and Kane
Developed land flooded
Flood cycles of 5-7 years
Railroad; marble fill
Rights of way
Colchester sand dunes → Jewish section
Boat access area
Someone used to trap there
Father pointed out: $$, inequity
Taking the bridge down (state/Mr. Fitzgerald) ’55 or ’60
Repairing the wall (Mr. Costello)
95 waterline
98 waterline
Filling in the river
Mr. Rankin
Winooski Valley Park District
Ben Geese's Island
Delta Park
Sandbar
Tax map
People coming on property on boats
Property during flooding
RR abutments--first one is center pier
Half Moon Cove
Perch
Pumpkinseed
Rock bass
Bowfin
Spawning (May & June)
River movement (point bars & cut banks)
Derway's cow pasture (disappearing)
Victory Gardens
Informal soup kitchen
Vegetable soup & Fish Chowder
Mr. Sanders
Homeless people
Taking care of our own during the Depression
Poor farm
Kids working
Welfare
Drew Street
Hobos by the river
House across from bike path in the 20s
Bread on the windowsills
Everbearing onions
Clams
Ticonderoga
Ran boathouse til she was 98
[Chappies]
Henry Terrier's mother was a Cushier
Martin family
Benway's taxi
French/Anglicized names
the Princess
Algonquin Indians
Battle of Bastille
France
Abenakis
Benoit
Walleye
Red [St Joliet]-sturgeon
Charlie LeBombard
Fondrys
Tom McKenna

Interview # 2

Ben Geese
Walleyes
Salmon Hole
Spawning beds
Boats
Flat-bottomed boats; skiffs
Derways pasture; crawlers
Crawlers
Ben Geese's boat
Walleye: May and June
South shore eroding; tree roots washed out
Ben Geese's Island
Kane and Burnett
Delta Park
Sand Dunes
Pike skiffs
Charlie Kirby
Howard Chappie
Martin
Joe Fortin/Fontain (“took him a long time to figure out it was the same person)
Anglicized French names
Herbert/Abair
Burgess/Bourgeois
Benoit/Ben-oit/Benway
Connected all the way to France
Princess
Algonquins
Food all along the river; ever bearing onions
Fish
Fiddleheads (mother: stir fries)
Lettuce like plant
Something for sores & poison Ivy (mother used it & Indians did)
Catnip
Ida learned about the plants from her mother
Martin
Drew Street
Grandmother
Picking fiddleheads
Gin Grass' barn
Wick House (moving it)
Derway's house was moved the same ways
Fish oil for the dog
Plants in his mother's garden
Fish spawning
carp
Sheephead
Northern pike
perch
pumpkinseed
rock bass
bull pout (night fishing)
Perch during the day
Mother cooking fish (perch, rock bass, pumpkinseed)
Friday fish chowder
Wooden cart
Soup kitchen
Fish: important source of food during the Depression
For local people
Poor farm
Carp & sheephead would go into flooded lowlands
Bass & perch and walleye family into gravel beds
Used to be cobblestones (protected eggs)
Lake trout
Suckers and mullets
Salmon
Lakers & salmon would eat their own spawn & walleye spawn
Spawn sack
Fishing regulations
Walleyes after 4/15 in the river
Now it's 1st Saturday in May
No regulations when he was a child
Need the regulations
25 lbs of walleye
10/person or boat
Blue smelts (everyone ate them all winter)
Troll for walleye in summer
Winter: with minnows through a hole in the ice
Jacks
Willow whips (allowed 15 starting when he was 12 or 13)
People like to fish 2 lines per whip
father wouldn't let him fish walleye when spawning
State: no fishing in spawning beds; enforcement
Fish were plentiful in the 70s and 80s; 10/person
Everything changed when they brought in salmon & lakers
Now only 3, 18”
Few salmon; Charlie's father knew where they were; nothing locally
Woodpecker holes in trees; grandmother
Bank swallow nests
Peanut
Geese and ducks
Canada geese: honkers
Plywood goose decoy
Snow geese in shallows: weeds, roots, snails
Duck grass
Now they go to Addison
came at 3 in the afternoon, right in front of boathouse, stay for 2 or 3 days
Fish ducks chase fish
Houseboats: Valleycat & Smallos
Latimer family acquired them after '27 flood
Moving the Boathouse in wartime, 1940
Small wall to protect boathouse - 1945
Crawlers under the boathouse
Nanny Martin
Mr. Valleycat with a walleye
Mr Charlie Kirby and the Pigeon
Flat bottom skiffs
Crowded at mouth of river
Walleyes end of June, first part of July
Stay in river if it was cold
Spawn and leave above 50 deg
Fed at night, they could see
Minnows & smelt
1945: no one catching walleyes
Dead smelt: story about too many smelt
Fishing walleye when spawning
Fish walleye up to 3/15 on the ice
Bull pout
Bull pout beds/nests
Raising bow fin
Bow fin tanks
Clement Martin's Glass Company
Walleyes excellent eating (perch family)
Didn't eat carp, sheephead, northern
Father's story about eating sheephead
North Ave washed out by Winooski, they moved it
Ben Geese's Island
Sandbar
Shallows
High water debris
River mud
River flow; filling center of river
Bob Hope
Grandchildren
Fish eyes in mouth for bait
the [Biznettes]

Appendix H: Intervale Descriptions
Hank Jaques
Well, I would say possibly...I don't know what they mean when they say the intervale—exactly what does the word actually mean—inter-vale. Can you explain that one to me? Because I can't. That would probably give you an idea. I really don't know…”

Well, if you were going to describe it to someone, what would you say?

“Oh, just a lot of nice agricultural land-woods-open meadows; it's just a big piece of property as far as I'm concerned. I mean, there's nothing special about it. I mean, I can't think of anything special about it, it's just like any other place.”

What about the river?

“Well, the river, I mean, that there, I mean, you've got rivers all over the place, but, ah, the rivers, the river, there's no difference between this one, and the Mississquoi, the Lamoille, or the Big Otter, the Little Otter...it's just—the land—it's just. Well, I'll tell you. OK. The intervale—it would be ideal, with the river the way it is—it would be ideal for, 150, 200 years ago, when the Indians were around here, it would be ideal habitat for Indians, let's put it that way. Because you've got the river, you didn't have the dams in Winooski, so the river was basically a river is a river--no big dam up in Bolton. Just the main river, no obstructions. It was just a basic river. And the land, agriculture-wise, growing—the Indians were great for corn, potatoes. Ideal place for Indian to habitat, for habitat. Because you've got the water, you've got the fish, you've got the river, you've got the land, you've got...everything. You wouldn't have anything to want. And that would my interpretation of the intervale. And people are utilizing it today, just like the Indians would, back 200 years ago, by having your gardens, or even just like below the Winooski, below the dam in Winooski, you've got those three little islands? I mean, with the main river, without the dams, just the flowing river, those three little islands would be ideal habitat for a little Indian family, a little Indian tribe, 10, 15 people. Perfect. You know.

And that to me is priceless. And like I said, the whole intervale would be ideal, ideal. Basically because of the river, and the real fertile soil. Those are the two most important things. But the word intervale, I don't know who come up with that word or what it actually means. But like I say, as far as the area, that's the way I feel about the intervale. I would say this whole area—this whole area, because it's nothing country, nothing but country, it's nothing but wild country from here right over to the, way on over to the...So I mean, it's just the whole—I don't know how many 100s and 100s and 100s of acres there is, but it's prime, prime land. And it's flat. Most of it's open for, I mean, agriculture. Most of it's open. I would say probably 2/3 of it you could plant. There is some woods, natural area. But that little island right there would be ideal place for an Indian tribe, wouldn't it? Right there. That island right there.”

Charlie Auer

53:35 I ask Charlie to describe the intervale. He talks about how it was low land, and talks about Derway's land. He talks about the pronunciation, and how his grandmother corrected him about it a long time ago. He mentions a book that he has from 1918 or 1920 that talks about intervale and how it's pronounced. He says that he pronounces it "interval" because that's what the people did, but its "vale". He talks about the two sisters, the Calkins, who his father knew and used to go down and see, right across from the
McNeil Plant; he was just a kid, but his father would go help them out if they needed it. He mentions contamination, which was never a problem. He describes how all of the low land would flood.

57:15 He talks about how as a child he used to work for Gove’s, a gladiola farm that was in the Burlington Intervale, the florist when he was a kid. He describes where Gove's was, on Main Street downtown, just up from Upton's. He talks in detail about the operation of the farm and picking the bulbs out to sell in the fall of the year; in spring, after the river went down; he also describes flooding and how farmers would not add anything to the soil, but rely on the nutrients brought in by the river.

59:30 “In the spring of the year, we'd go back when the river went down. The whole area down there was all natural; that used to flood. And when it went down-the Fitzgerald's, too-they used to cultivate it. They never had-I don't ever remember them putting anything down on the ground. They just turned it over, they cultivated it, and then they'd plant. And whatever they put in - like Mr. Derway, when he was up here, he'd put the cabbages in, and if we didn't pick them out soon enough, they got so big, they'd split. That was really-in the intervale the same too: you couldn't leave it, because they really grew. Everything. I don't care if it was carrots or what, they grew. It was really something to see.”

**Phil Brett**

56:54 I ask Phil to describe the intervale. He describes a river-forested area with a variety of fields interspersed from its farming past. It's different for him because he grew up with and is more used to upland forests. He describes tree species: swamp maple, green and black ash, cottonwoods. Ian relates to this habitat very closely because it's where he grew up. And the river runs right down the center of it. We spend a huge amount of time on the river, especially during fishing season. He describes how their canoe, which they keep at Charlie's, is their transportation around the intervale, and how Ian would take the canoe across the river to hunt at Half Moon Cove. If the intervale is his world, Half Moon Cove is the core, the center. He talks about how well Ian knows this land (Like the back of his hand. I mean, it's his place. Ian is writing his Environmental Merit Badge project on Half Moon Cove), and an incident where someone was lost there, and they go down to help (although by the time they got there, the situation was resolved).

1:01:30 Phil talks about where they live right now, at Northgate at the mouth of the river. Phil talks about the "flurry, the blizzard" of memories associated with the intervale. He tells the memories of going walleye fishing with Ian that stand out in particular. He describes how they rigged up their canoe with oars and switched bow for stern; Phil would row, and Ian would fish. He talks about how many people on the river fish with motorboats and big rigs, but his family never had a lot of money so they would do things on the cheap; they would talk to Charlie Auer about what they used to do back in the day, and Phil remembers fishing as a child on the Winooski up by Middlesex and the Wrightsville Dam.

**Diana Doll**

37:37 "I would describe [the intervale] as a 700 acre floodplain on the edge of the city, and…bird migration habitat area. A lot of birders come down, especially in the spring,
people up and down with binocs. So it's pretty cool--I think it's always been for the native population--hunting, hunting, hunting, hunting, especially because it's down below cliffs, so you could probably trap--like my dad and brothers do, they walk along and make the deer go into a certain area where they can get them. The Mocassin Village, you know – Hank will – Hank's probably told you a lot about that. It's great--it's great to have this right next to Burlington."

**Amanda Andrews**

47:00 Amanda describes the Burlington Intervale, managed by the Intervale Center, and some of the farms down there (Digger's Mirth, Half Pint, Pitchford, Arethusa…) She describes the Intervale Center, a food and farming nonprofit that manages the Burlington Intervale lands.

48:15 Amanda talks about "The small intervale…", she's heard it applied to Burlington and Colchester. This intervale includes Tamarack Hollow ("2 oxbows down from the IC), the Ethan Allen Homestead (one oxbow down), the conventional Colchester dairies (Thibault, Fitzgerald) and vegetable farms (Brigante, Mazza) and horse farms. She talks about the divide between the organic, new wave Burlington Intervale farmers and the conventional, native Vermonter Colchester farms. They don't fit into either. She talks about how Mike is a 9th generation Vermonter, French-Canadian, lumberjack.

**Pat Fitzgerald**

36:15 “Low land next to the river, in this area primarily used in agriculture. In other areas, I'm sure it's used for other things too, probably for hunting, and recreation. In this area, primarily agriculture, and on this side of the river, the two biggest users are probably dairy and one other grain farm—Senesac has a grain farm.”

**Liz Thompson**

4:55 "I love the word, intervale, it's an old word, English and it means between vallum, between the walls. So it's big, flat area through which the Winooski River flows - and floods - that is bounded on its sides by what look like walls--steep slopes going up to the next level of mostly sand but in some cases bedrock derived soils. There's a cow in the river, across the river.”

**Gale Lawrence**

51:30 "It's just wide open space. What it is--it's the Winooski River's floodplain. What I've learned about rivers as I've watched them flood annually is a river creates its floodplain to fulfill part of its natural cycle. It needs a floodplain to expand into in the spring when spring runoff or rain events force it over its banks. A river--I know they try to channel rivers, they try to riprap rivers, they try to make rivers flow the way they want them to flow rather than the way they're flowing naturally, but the natural course of a river, when it comes down from the mountains, it's running fast and hard and it cuts a straight line, and then it hits flat land and it begins to meander, and those meanders are a hugely important part of slowing down the water. [Interruption as Bob comes in]. A river's floodplain is a really interesting place, especially the floodplain forest--full of birds, rich with wildlife, wildflowers too. [Interruption to talk with Bob]. I fell in love with it as this open, urban space that was like Burlington's own Central Park…"
**John Ewing**

11:00 Jane says it fascinates her how the river moves around through the easily eroded sands. I ask John to describe the intervale. He thinks the name means "between hills".

“It's the wet land along the river, and particularly fertile because it brings the nutrients down the river. Always was considered prime agricultural land. Ethan Allen recognized that, but the Native Americans before him did. I would define it as the floodplain area along the river; occasionally flooding.”

**Tom Hudspeth**

24:30 I ask Tom to describe the intervale. The two main things that stand out for Tom: wetlands (in many cases intact, some modified), and agriculture. The intervale is a rich area, due to the deposition of flooding, and a prime site for agriculture--urban agriculture at its best.

25:07 “This is a rich, rich area that you get this flooding in the spring most years, so the deposits of the rich soils, silts and sediments and so forth on the land so it's a pretty prime site for where the Intervale Center is doing its activities and over on the Winooski Valley Park District/Ethan Allen Homestead part there again where the New Farms for New Americans site is where you have a lot of especially Bhutanese farmers, it's a pretty amazing area. It's urban agriculture at its best. So less than 2 miles from downtown Burlington and less than 2 miles from the University of Vermont, here you have--in the case of the Intervale Center--over a million pounds of organic produce produced every year and another 50,000 pounds that is gleaned and given to food shelves and kitchens and so forth, which is pretty remarkable
Appendix I: Sample Concept Map

[Diagram of a concept map with various topics and subtopics related to ecosystem and development, including themes such as agriculture, land-use practices, and conservation.]
Appendix J: Letter to Judy Dow

April, 2014

Dear Judy,

I hope that this letter finds you well and in good health as spring returns!

I wanted to follow up on my emails to you over the past months. As I wrap up my oral history project about the lower Winooski intervale, I am thinking again of how you inspired my interest in the intervale one day two years ago, in all its richness and complexity and conflict. Thank you for spending the afternoon with Connor Stedman and me, and showing us the intervale and Burlington. I wanted to thank you for sharing your family stories and experience, and your knowledge of Burlington history, which shaped my understanding of the intervale. I was very interested and moved to hear Charlie Auer tell some of the stories I heard from you: the founding of Benway's taxi, the Ten Commandments, his grandfather walking down Gully Hill to work in the lumberyards.

Your name and work came up many times throughout the oral histories I conducted, and some of your stories appear as narrative "postcards" in the "sound map" I produced as a part of this project – about the Abair House, the sludge pond, and the gypsy camp on the plateau at the top of the hill. Please let me know if you prefer these stories are not shared in this way. The sound map features audio pieces drawn from oral histories, embedded in a online Google-based map.

It can be viewed at: http://placestories.com/project/8328

All the best, and gratefully,

Kate Blofson