Hill Farming of the Mad River Valley

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July 28, 2013

Summary

This analysis of hill farming in Mad River Valley is being undertaken in the wake of Tropical Storm Irene in an attempt to glean lessons from its long history of upland agriculture. Hill farms in the Mad River Valley and the state were initially preferred by early settlers but were eventually considered marginal for agriculture. Many crops have been attempted, including grains, wool, meat, fruit, sugar and one which became dominant by the end of the 19th century – dairy. The heyday of Mad River Valley's hill farms ended over 150 years ago when the pressures of regional and national commodity markets meant that hill farms could not compete with farming the easier, more fertile fields of the valleys. The Mad River Valley's unique broad upland plateau provided for a strong farming belt at an elevation higher than the valley floor. As such, the Mad River Valley enjoyed a combination of agricultural locations – valley, plateau and the more classic small-scale hill farm. Mid-19th century immigration breathed new life into the higher hill farms, which could be bought more cheaply than valley or plateau farms. The hard life on these upland farms bred a kind of resilience, resourcefulness, and toughness in the farmers who persevered. Nevertheless, the statewide focus on commodity dairy brought major technological, regulatory and market changes through the 20th century resulted in a near disappearance of dairy hill farms in the Mad River Valley by 2000. What has emerged in its wake is a resurgence of smaller Mad River Valley farms – both diversified and specialized, on hills, plateau and in the valley. Many of these operations are based on local markets, local and artisanal processing of crops, sustainable practices, community support, and new approaches to marketing beyond the region. This new wave of agriculture harkens back to conditions that made the hill farm viable 200 years ago. Without the pressure of competing in a national commodity market, hill farms are once again playing a viable role in the local Mad River Valley agricultural system.

Background

Tropical Storm Irene's devastation on the Mad River Valley's riverside farms gave rise to many discussions locally and regionally about agricultural flood susceptibility. This project was inspired by those conversations. The goal is to look at the history of hill farming in the Mad River Valley with the idea that there may be clues in the area's past that could prove useful in building a more flood-resilient agricultural system. Looking primarily at hill farms is somewhat of an artificial dichotomy when looking at Mad River Valley's agricultural past. The hills, upland plateaus, and valleys have been a whole system, an integrated landscape. The hope is that subtle and not so subtle differences emerge and provide some insight into the appropriate uses of uplands in the future. This essay is part of a project that also includes a documentary film on present and future of Mad River Valley farming. It was undertaken by the Mad River Valley Rural Resource Commission and guided by the Mad River Valley Planning District using a grant from the Vermont Division of Historic Preservation's Certified Local Government Program.

Historic preservation consultant, Lyssa Papazian, produced the essay. It is based on research using written and oral histories, site visits, historic maps and photographs, historic agricultural census data and new interviews of many current and former Mad River Valley farmers.

Introduction

The early history of farming in Vermont was marked by constant change. There was a golden age from 1790 through about 1840 when Vermont's hills produced grain, meat and wool for regional and national markets. However it was short lived. As early as 1820, large families, limited tillable acreage, and increasing competition from western commodities led many born on Vermont hill farms to leave when they got old enough. Those that stayed and those that arrived much later in the 19th century fleeing other hardships – such as the Irish potato famine – learned how to adapt to living on the hills and narrow valleys of Vermont. The late 19th century and early 20th century saw much less agricultural change, more constancy in population, and the dominance of dairy as an anchoring industry. The larger, more commodity-based operations were increasingly concentrated on the best land in the valleys and flatter uplands. On the hills the subsistence farm, on which the primary goal is to provide for one's family, was the Vermont model from the 18th century through the 1950s. Interviews with Mad River Valley residents who grew up on its hill farms in the 1930s through the 1950s identified a life full of hard work, few choices, multiple jobs, homegrown foods, and strong, small communities of neighbors helping and looking out for each other.

In Vermont and the Mad River Valley today, there are two agricultural approaches: (1) a commodity-based form of large-scale agriculture suitable for only the best land and exemplified by the Defreest Farm in Warren; and (2) new and re-imagined farms featuring cheese makers, small commercial produce farmers, and meat for local consumption exemplified by the following Mad River Valley farms: Von Trapp Farm, Neill Farm, Floodwoods Farm, Kingsbury Market Garden, Hartshorn Certified Organic Farm, Small Step Farm, & Gaylord Farm.

This essay tells the story of how the challenges and evolution of agriculture in this upland state have played out in the Mad River Valley's hill farms.

Terrain & Vermont Farming

Was there a special crop that was perfect for the hilly lands of Vermont? Not really – because the types of farming that could best utilize hills were still subject to temporary market opportunities and the challenges of national competition. Animal-based agriculture, as well as fruits and trees, have historically done well in Vermont's cold climate. However, the limitations of its terrain, soils and resources mean that even optimal agriculture has been difficult.

Vermont's marginal steep terrain first pastured sheep and then cows. The land did not need to be flat to work well for these animals, though the necessary forage-making tended to be done on the flatter and more easily cropped and higher yielding fields. Sheep farming was attractive given the lack of perishability of its product and the protected market for American wool between 1815

and the 1840s. The marriage of hardy sheep grazing hilly pastures seemed a perfect solution to the challenges of Vermont's hilly countryside. But even this crop was not sustainable when the domestic market for wool fell apart in the 1840s in the face of western and international competition. The changing market conditions and evolving refrigeration technology meant that cows and dairy provided a more stable future for Vermont agriculture. However, like sheep farms, cow-based farms were primarily commodity operations, which were highly susceptible to the pressures and opportunities of the regional and national dairy markets. Western farms with better agricultural land were always able to produce the same commodity products at cheaper prices. The key to Vermont's long dairy specialization was to supply the closest large market with the most perishable product possible given the available transportation technology.

Tree-based agriculture is perhaps more uniquely suited to Vermont's hills. Maple sugaring and apple orchards, dependent on the cool climate, utilize the native forests and air-drained hills to advantage. These have been components of the state's diversified farms for centuries but always as a secondary crop. Orchards were once a staple on many farms producing hard cider and apples that were used locally or on-farm. Sugar, and later syrup from maple trees, was a very common winter product on all kinds of farms. Sugaring increased in production as the forests, initially cleared, grew back to maturity. Sugar, more than apple products, provided an important auxiliary cash crop. These, however, were specialty, season-specific crops. By their nature, they were more typically used to supplement rather than serve as the main product of Mad River Valley farms.

Hill Farming Factors in the Mad River Valley

There are several factors that have shaped farming in the Mad River Valley including soils, climate, technology, markets, transportation, the local economy, and the risks from natural and man-made forces. However, the most significant is terrain, which divides the region into hill, plateau, and valley farms.

The Mad River Valley terrain is notable for two things: mountains and an unusual combination of valley and upland plateaus providing large areas of flat terrain rare in Vermont. Its high percentage of mountainous terrain and steep hills were very difficult to farm. This resulted in a relatively large amount of land remaining forested, or quickly reverting to forest, by the early 19th century. The harvesting of timber and associated wood-based industries has been an important economic engine here alongside the region's farms. That a mountainous area now known for its skiing and high peaks should also have a historically strong agricultural belt is perhaps surprising. But this is the special paradox that characterizes the Mad River Valley. The riverside valley of rich, flat large fields is augmented by a long upland plateau offering large flat or gently rolling fields and grasslands.

The Mad River Valley watershed [Fig. 1] fully incorporates three towns (Fayston, Waitsfield & Warren) and portions of two to the north (Duxbury and Moretown). Most of the land in the five towns (Moretown, Duxbury, Fayston, Waitsfield, and Warren) is located on hills with elevations ranging from 550' to over 2,500'. In the case of Duxbury, Moretown, and Fayston, nearly all the

land is quite hilly. When every house was at least a subsistence farm - from the c. 1790 settlement period until at least 1900 - most Mad River Valley residents were hill farmers.

The five distinct topographical areas of the Mad River Valley are (1) a limited amount of flat, arable valley floor (widest in Waitsfield); (2) steep riverside areas of concentrated water power (Warren and Moretown) where more mills than farms developed; (3) the important chain of eastern upland plateaus which constitute a strong agricultural belt from East Warren to Waitsfield Common; (4) the higher rolling hills which include Moretown Common; Bragg Hill and North Fayston in Fayston; the slopes of Lincoln Mountain and the eastern foothills of Warren; and East Hill and the eastern foothills of Waitsfield; and finally (5) the mountain peaks of the western (South Duxbury, Fayston, and Warren) and eastern (Moretown, Waitsfield, and Warren) ridges where lumber was more prominent than agriculture.

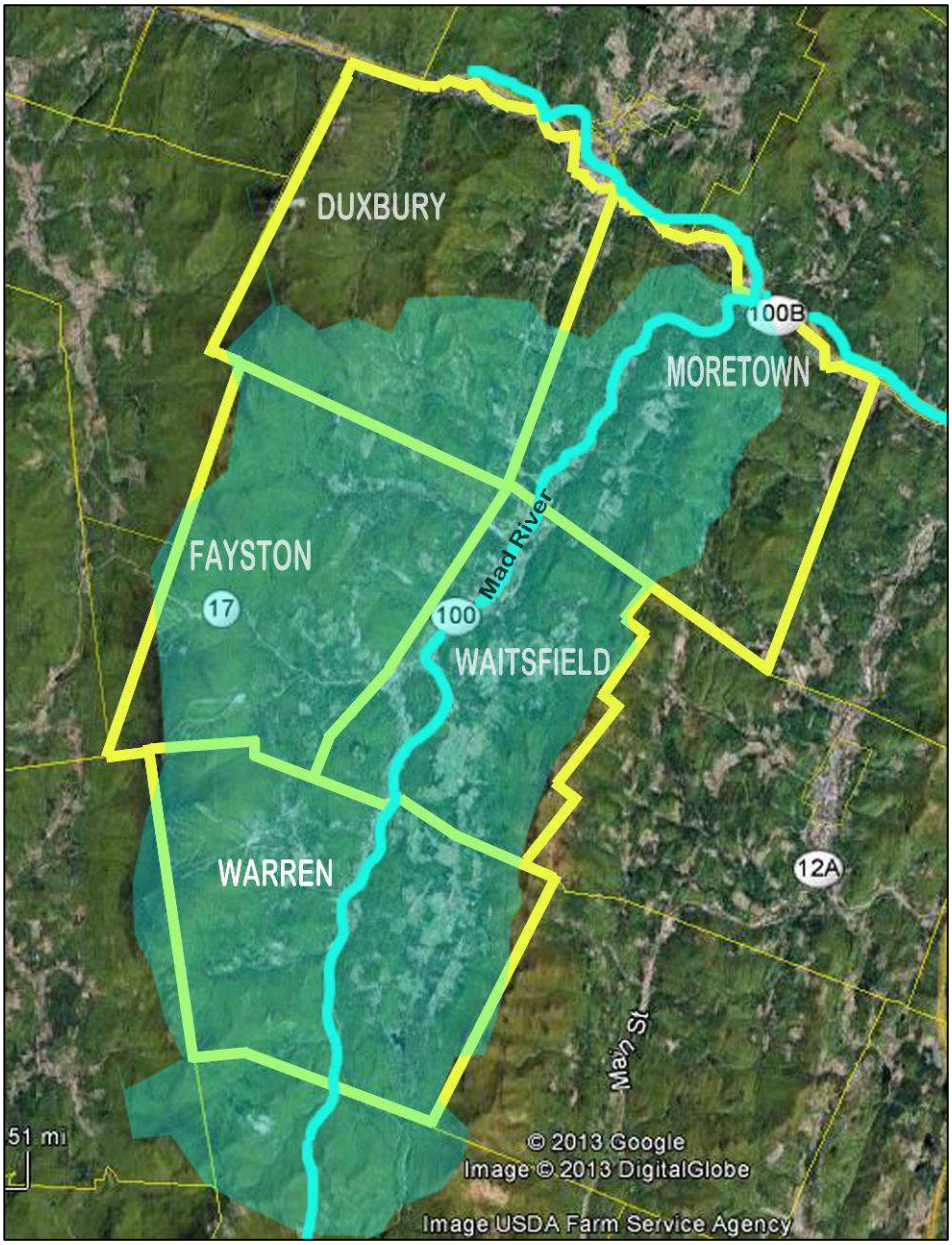


Fig. 1 Watershed of the Mad River shaded in aqua and determined by high mountain ridges: Green Mountains with Mt. Ira Allen, Burnt Rock Mtn, Molly Stark General Stark, Mt. Ellen, & Mt. Abraham to the west (left) and the Northfield Range with Bald Mtn., Scrag Mtn., Mt. Alice & Burnt Mtn. (right).

All current and former farmers interviewed for this project consider the flat valley land along the Mad River to be the area's best farmland. The advantages they note are well-drained, less stony soils that tend to be high in fertility, can be hotter in summer and are good for important dairy crops like feed corn. The hills are steep, rocky land often riddled with springs, which drain poorly and are often hard to access. The upland plateau is relatively flat and productive, but still requires more work than the valleys due to stones and drainage problems. The farmers who have worked the hills and plateaus say they are not suited to heavy tillage and are not as fertile or productive as land in the valley. The breezy slopes provide good air drainage for perennials like fruit trees and berries susceptible to fungal issues and are good for producing dry hay. Some note that the hills have fewer frosts and more hours of daily sunlight in the shoulder seasons and may provide advantage for some vegetable row crops, but again may require more work to till. The variety of land found throughout the Mad River Valley has had profound impact on its agricultural development.

Waitsfield & Fayston

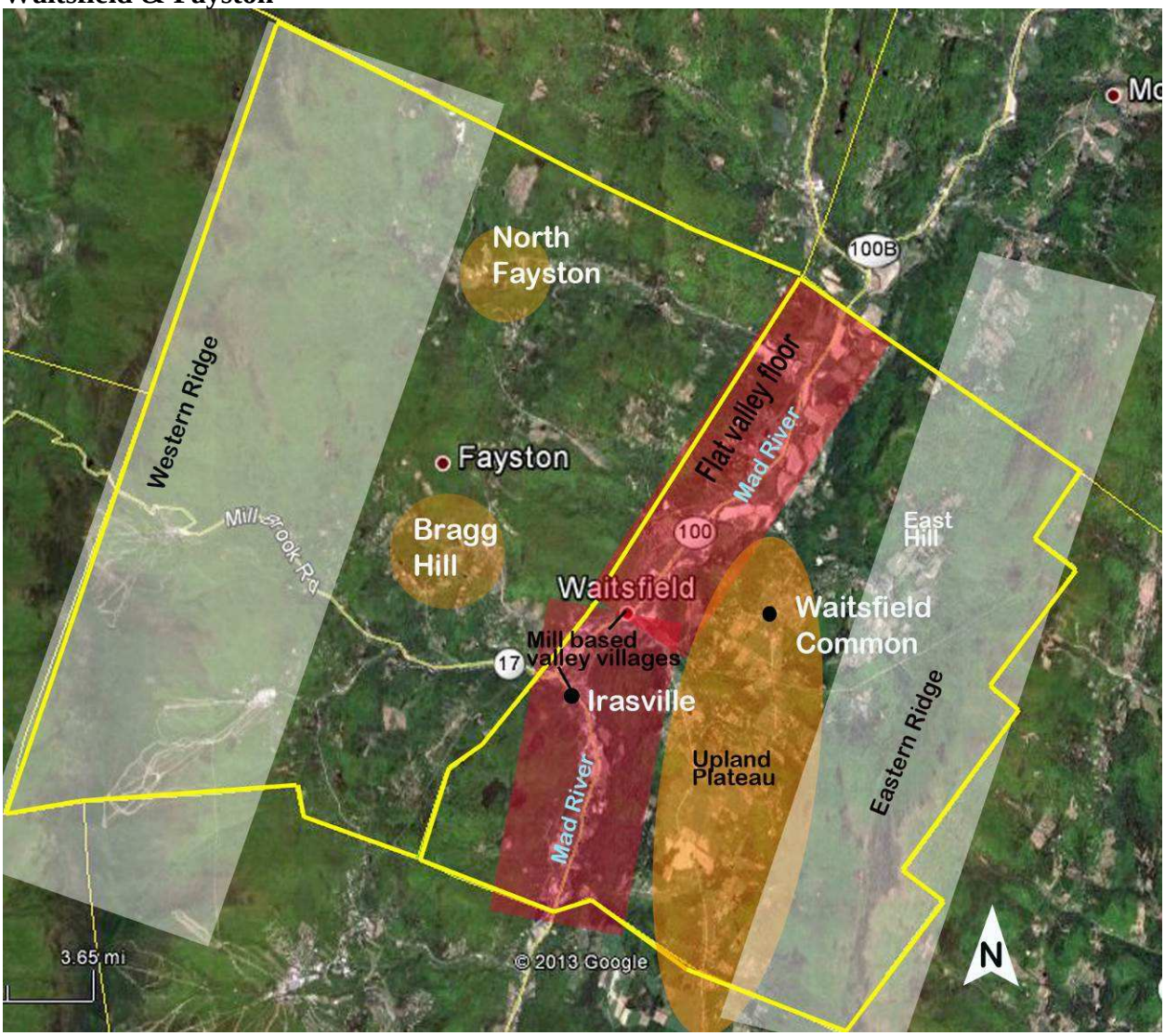
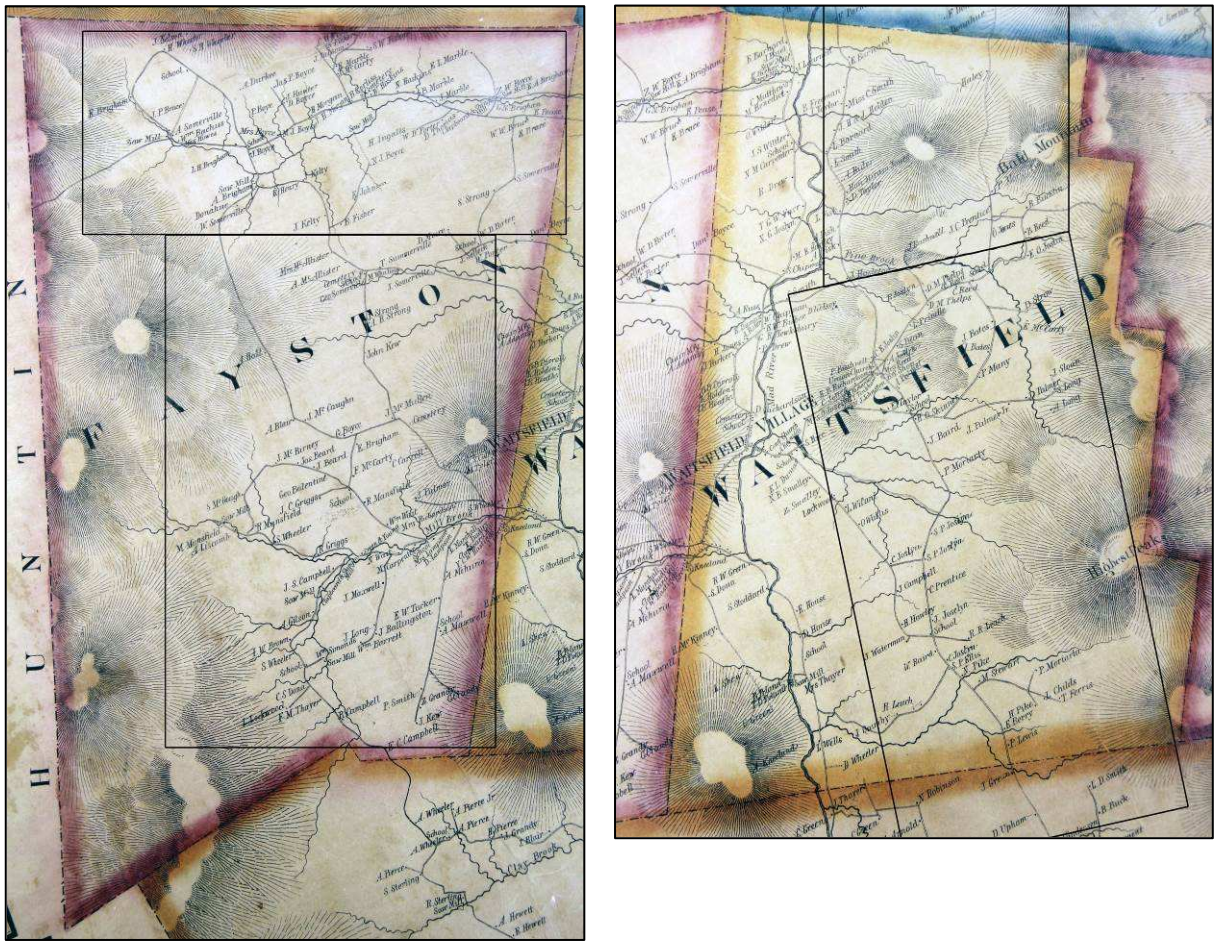


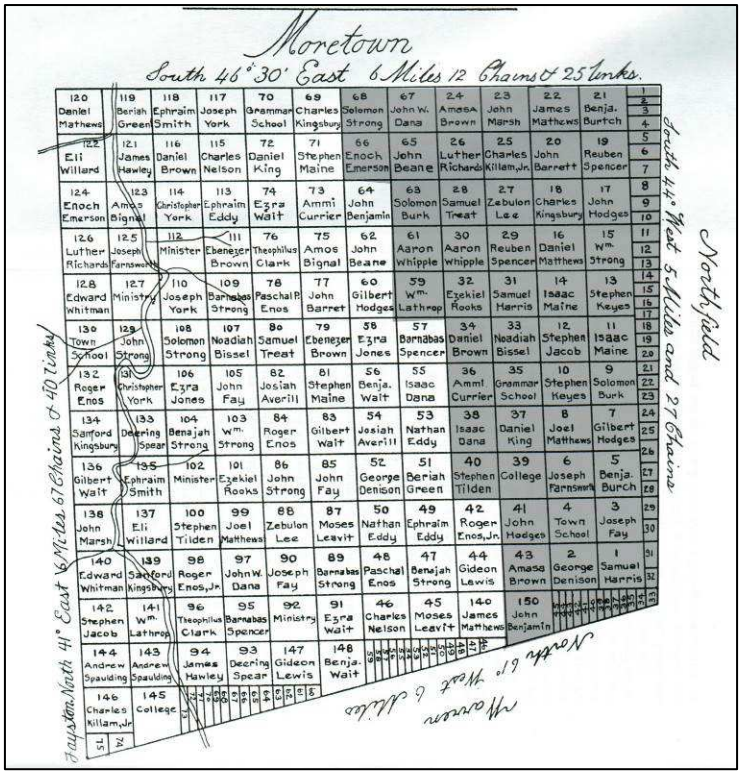
Fig. 2 Google Earth map of Fayston and Waitsfield annotated to identify topographical areas.

Waitsfield has the broadest and thus most arable sections of the Mad River Valley floor and is host to many productive farms. It also has a broad upland plateau east of the valley with large, reasonably flat fields that have historically supported some of the town's most successful farms. This area is anchored by the early settlement of Waitsfield Common. Waitsfield's higher hill lands along its eastern border hosted some of its earliest farms. Waitsfield's upland plateau still serves as an important agricultural resource of the Mad River Valley.

Fayston has no river valley, only hilly uplands where even the broadest fields are somewhat sloped. Farms were smaller and farms tended to be more diversified throughout the town even in the "farming belt" of Bragg Hill. These were developed early even at the higher elevations.



1858 Walling Maps of Fayston (left, Fig. 3) and Waitsfield (right, Fig 4) annotated with black boxes outlining the upland farms and hills. Clearly the mountain ridges at the left (west) and right (east) were not inhabited by the 1850s. However the foothills in both Fayston and Waitsfield were dotted with farms.



Top & Bottom:
Two maps of early Waitsfield from Richard Bisbee's *History of Waitsfield.* (Shaded sections are now part of Northfield).

Fig. 5
Map drawn in 1816 showing how the original proprietor's lots were evenly distributed across the town.

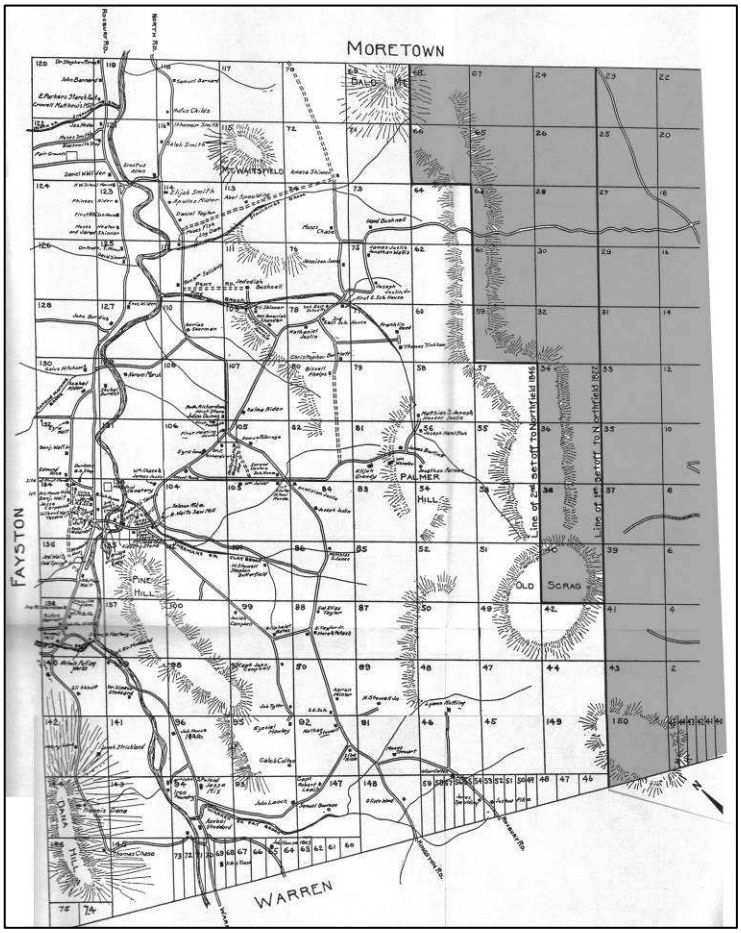


Fig. 6
Map by Bisbee showing where farms were located in 1800.

Duxbury & Moretown

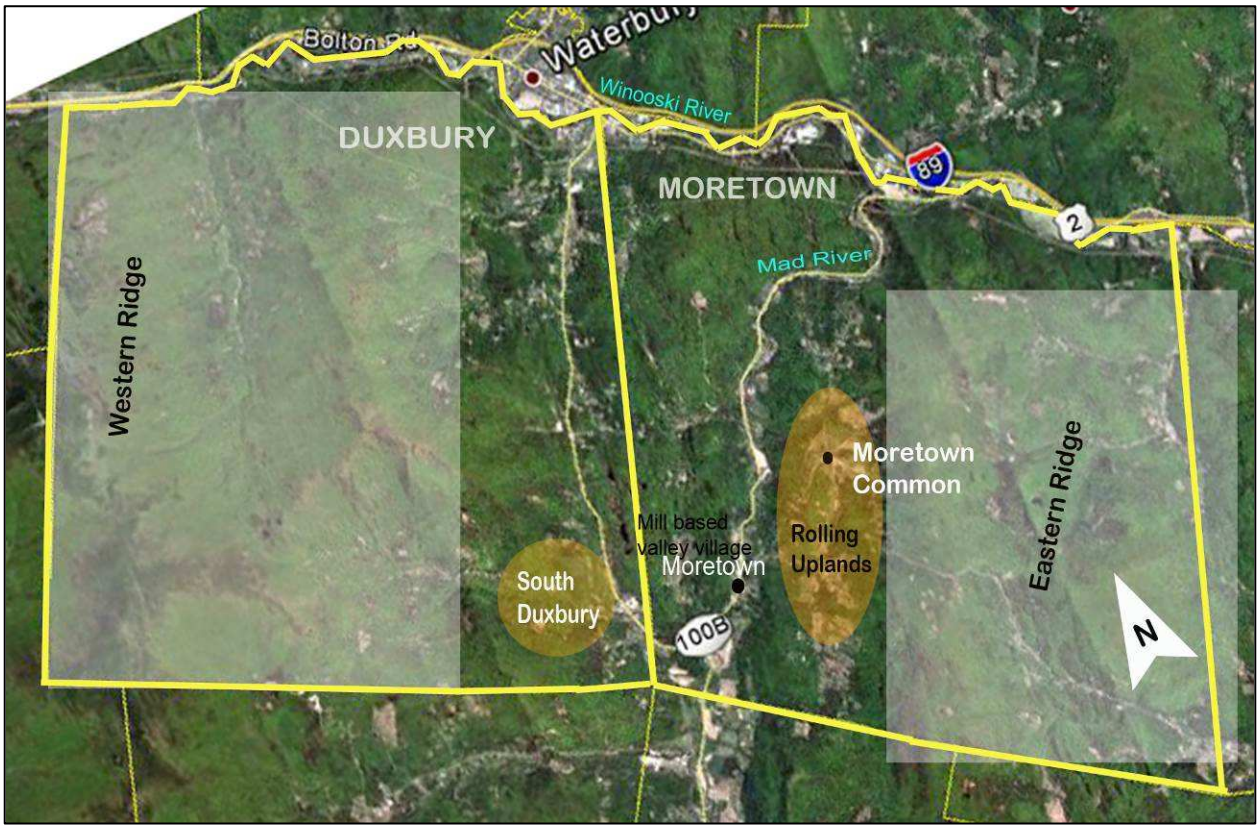


Fig. 7 Google Earth map of Duxbury and Moretown annotated to identify topographical areas.

In Moretown, terrain divides the town into several sections that relate either to the Winooski River Valley on the northern border, the southeastern section of hill and valley draining into Berlin and Northfield, or to the southwest portion draining to the Mad River. In the area related to the Mad River Valley, there is truly a contrast, similar to Warren, between a narrow river valley suited well to water-powered mills, but not farm fields, and the rolling uplands where farms developed early on in the Moretown Common area. Like Fayston's Bragg Hill, Moretown Common was a notable upland farming center from the 18th to the 20th centuries.

In Duxbury, extreme terrain means that only the southern and center sections are part of the Mad River Valley watershed. These are very hilly uplands that were farmed in the mid-19th century but eventually transitioned almost exclusively to lumbering interests and forest based economy.

Fig 8. 1858 Walling Maps of Duxbury (left) and Moretown (right) annotated with black boxes outlining the upland farms and hills within the Mad River Valley watershed. Clearly the mountain ridges at the left (west) and right (east) were not inhabited by the 1850s. However the foothills above Moretown Village on either side were dotted with farms. Note also the concentration of farms at the top of both towns along the Winooski River, which is not part of the Mad River Valley watershed.

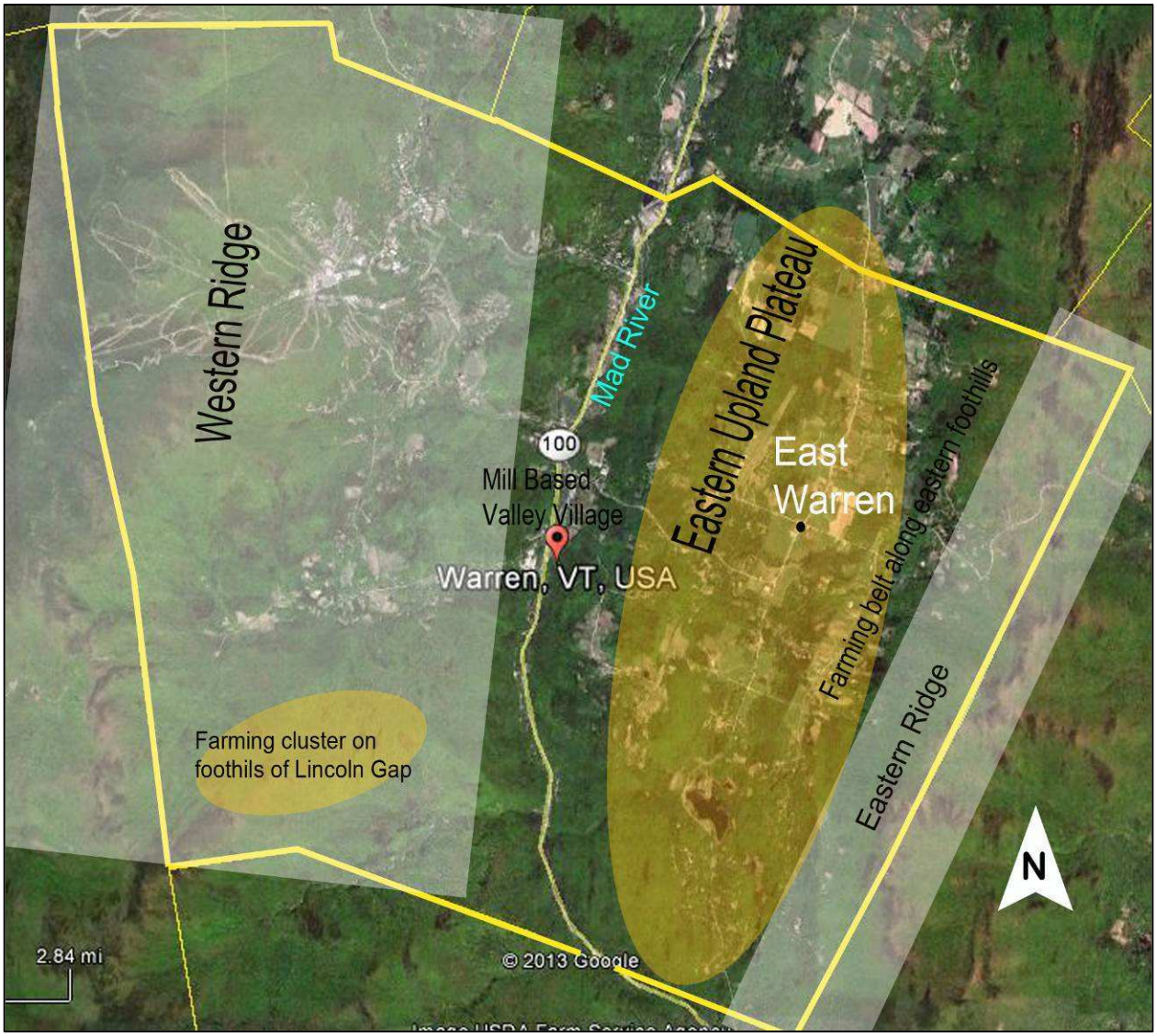
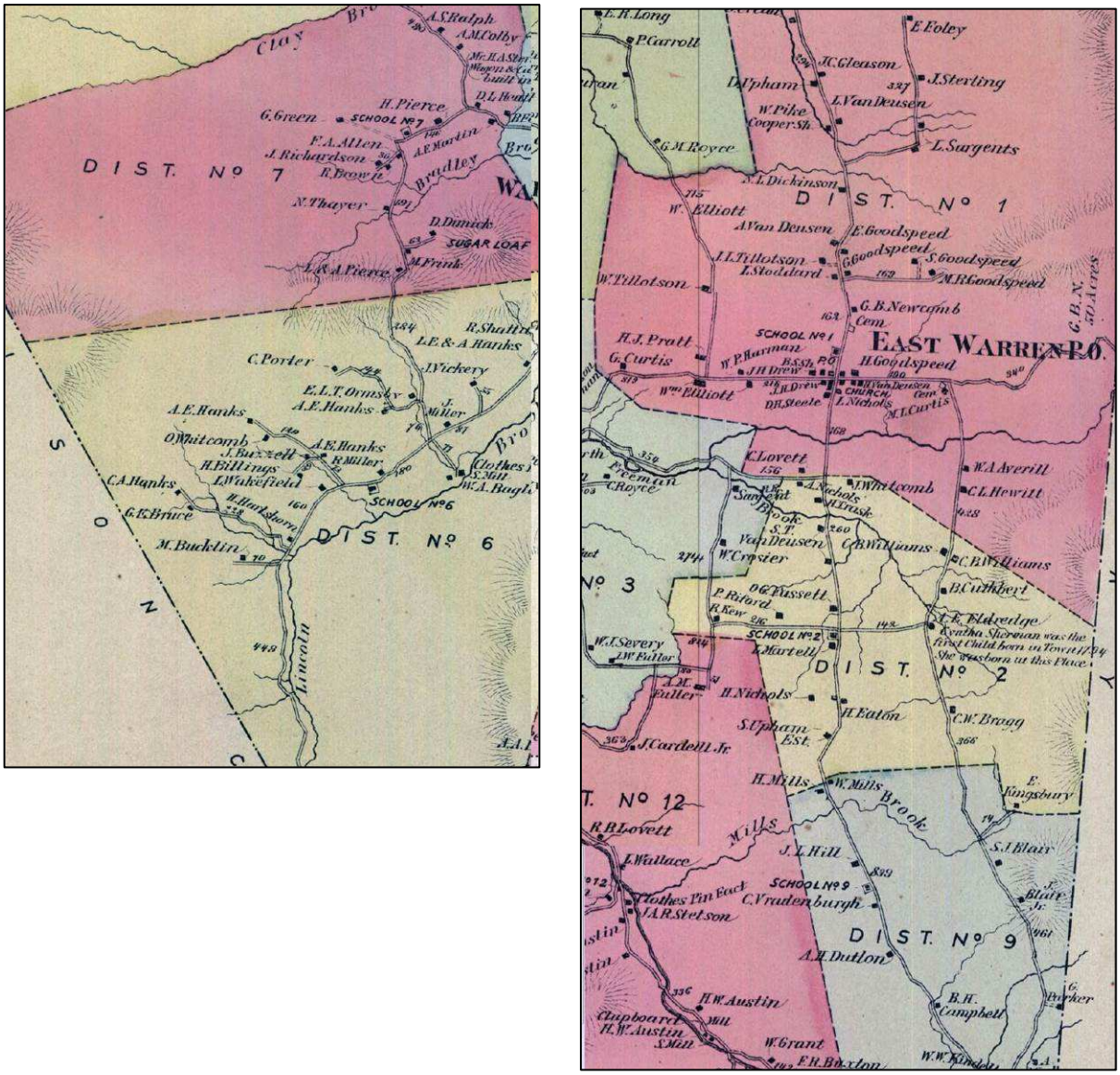


Fig. 9 Google Earth map of Warren annotated to identify topographical areas .

The Mad River begins in Warren, where the narrow valley floor doesn't support much good farmland. As a result, most of Warren's farms are located upland. The plateau of East Warren is high but relatively flat and has been continuously farmed similar to Waitsfield's upland farms. The farmland on Warren's foothills to either side of the valley floor – Lincoln Gap area west of the Mad River and the eastern foothills along the Senor and Old County Roads – are comparatively hilly and more challenging. However, some of the town's earliest farms were located in the highest terrain.

Fig 10. 1858 Walling Map of Warren annotated with black box outlining the upland plateau and eastern foothills. Note also a cluster on the western side near Lincoln Gap road.



Two details of 1873 Beers map of Warren showing at left (Fig. 11) the Lincoln Gap area and at right (Fig. 12) the well-developed farming belt of the East Warren plateau and foothills. These maps illustrate a renaissance of farming on the higher elevations spurred by immigrants. By 1930, few of the higher locations still hosted farms.

Hill Farming History in the Mad River Valley

Settlement Period: Grain, Potash, Meat, and Sheep

The first proprietors laid a grid within town boundaries without much regard to terrain, dividing the land into lots. The proprietor's map of Waitsfield shown in Fig. 5 is an example. European settlements followed the town charters of the 1780s and 1790s and favored the hills over the valleys. The early valleys were heavily thicketed which made them marshy, frequently flooded, and difficult to clear and use. This changed in the following decades as valleys were cleared and the land drained.

The new residents carved small subsistence farms from the thick forests. These small operations depended little on access to markets or population centers. Local markets, farm produced goods, and water-powered mills in the valleys and hills gave farmers a way to locally process and trade their crops. Barter supplemented and sustained the small homesteads. This was the hallmark of this short-lived era. The town centers were on the uplands to the east of the Mad River, known today as Moretown Common, Waitsfield Common, and East Warren. These were augmented by much smaller farming hamlets that were spread across the landscape, including Bragg Hill in South Fayston, North Fayston and South Duxbury (along Dowsville Brook). A "sheep craze" swept the hills of Vermont from 1815 (the introduction of the fine wool Merino breed) to the 1850s (when tariffs no longer favored American wool). The emphasis on sheep offered a viable use of the abundant pastures and grass of the Mad River Valley's many hills. Other hill farm activities included grain growing during this brief early period when Vermont was America's breadbasket. The first decades of the 19th century were a heyday for hill farming in the Mad River Valley.

By 1840, historian Zadock Thompson wrote of Waitsfield: *"Mad River passes through the town near the western boundary... Along this river the intervales are extensive, and together with the adjacent uplands, make many excellent farms. The high lands too are of good quality, and there can hardly be said to be a poor farm in town…."* Indeed, late 20th century Waitsfield historian, Richard Bisbee wrote of the "sweet soil" found on the plateaus above the Mad River and of the excellent grasses that grow on the hillsides. This rosy picture of the productive uplands coincided with the population peaks of the Mad River Valley towns in the 1840s. Soon afterward, major shifts in the viability of hill farms began a long population decline.

1850-1870s, Dairy, Irish Potatoes, and Sugar

The hills had initially been quite productive. However, after clearing for timber, potash, pasture, grain production and other early farming, the fertility of those hill-top soils diminished. Cropping plus grazing by hundreds of sheep allowed erosion to diminish the once rich soil that had originally been anchored by the forest and brushy cover. Erosion over decades may have exacerbated the difference in quality now seen between hill and valley fields. Though some farmers report a few pockets of rich hill soils, most current Mad River Valley Farmers observe a starkly lower level of productivity in upland fields. By contrast, the regular drainage from the eroding hills and seasonal flooding preserved and refreshed the fertility of the valley floor and

adjacent upland plateaus over the same period of time. The difference in productivity and ease of operations between land in the valleys and lower elevation plateaus and that of the steeper hills grew over time. By the mid-19th century, that difference began to negatively affect the value of hill farms and shape the settlement trends over the next 100 years. After the protective tariffs on wool were lifted in the 1840s, the commodity market for sheep farming dropped sharply. This left the hills without a main cash crop that used the cold climate and rocky terrain to advantage. In the second half of the 19th century the hill farms of the Mad River Valley remained smaller and quite diversified while the farms on the upland plateaus and along the river valley became more specialized and more prosperous.[1]

Vermont as a whole turned to cows in an effort to utilize the pastures left from the decline of the sheep industry. By 1860, the transition to dairy and crops like potatoes and feed grains in the Mad River Valley began a long trend that favored tillable land uncommon on steeper hills. The needs of milk and dairy production placed new emphasis on forage and grains, especially feed corn, hay, potatoes, and later alfalfa. The upland plateaus of the Mad River Valley offered large flat fields like those in the valley. These were better suited economically to tillage and planting in single crops than the hiller terrain. Thus they were better suited to large-scale dairy forage production. They could better accommodate the use of innovative farm machinery that was developed on flat western farms. These implements did not work as well on the stonier, steep hills. As a result, these hills were not cropped much after mid-19th century. The higher hilly land also tended to need more fertilizer to produce the same crops as the valleys, especially after years of erosion[2]. The upland plateaus became areas of agricultural concentration with some of the area's prime agricultural soils. Drainage challenges on the upland plateaus were overcome by the labor intensive installation of tile drainage on many farms. These fields also involved the annual work of picking stones and using tillage equipment that could get through rockier soil than on the river valley floor. Despite the extra work of using the plateau fields, they were still quite productive and anchored many of the best farms in the Mad River Valley.

The map of c. 1800 Waitsfield homes in Fig.6 is an example of how widely spread the farms were 200 years ago. Maps of the 1850s and 1870s (Figs. 3, 4, 8, 10, 11, and 12) showing farms are not that different. They indicate some movement away from the higher elevations though many farms still dot the rolling landscape. They also show a wide distribution of mills and factories that supported the local farming economy by turning perishable crops into storable staples like hard cider, butter and cheese or value-added products like cloth or potato starch However, though maps show many farms throughout the hills and valleys, they varied quite a bit in size and value.

[1] Several recent sources on agriculture in the Mad River Valley make this point including: UVM Historic Preservation Program, *Historic Resources of the Mad River Valley Multiple Property Documentation Form*, 1992; and Mary Jo Llewellyn, *McLaughlin Farm* National Register nomination, 1995, significance statement

[2] In addition to top soil erosion, decades of crops like potatoes grown on naturally acid hill fields without replenished potassium, nitrogen, and lime led to dropping productivity. According to Harold A. Meeks in his *Vermont's Land and Resources* [1986]: "Declining fertility, measured in this case by a lack of liming, probably was important in hastening the disappearance of many Vermont hill farms in eastern and central portions of the state." (p.274).

The data collected by the U.S. Agricultural Census in 1850, 1860 and 1870 indicates increasing differentiation between the hillier farms and those in the valley and on the plateaus. In general, the more valuable, larger, more specialized farms were in the valley and upland plateaus, while the higher elevation farms were smaller, less valuable and more diversified. The hill farms were closer to subsistence farming while those in the valleys and plateaus were more fully engaged in the commodity markets of wool and then dairy. For example, in 1850 a typical Fayston upland hill farm of 200 acres had a value of only $600 while a similar sized typical plateau or valley farm in Waitsfield was valued at $4500. The hill farms had some milk cows, sheep and swine and grew small amounts of various grains and potatoes. They made butter, sugar and a small amount of orchard products. The valley farm focused on feed crops and animal products (butter, wool and meat) rather than grains and orchard goods. The valley dairy operation was complemented with major sugaring activity, likely using upland hill land to do so.[3]
In 1860 the difference in farm value between hill and valley was greater. More valley and plateau farms had shifted completely to dairy while sheep herds were still common in the hills. The valley and plateau farms were milking 20 or more cows while the typical dairy herd in the hills was still around 8. In fact, the top dairy farms were on the plateau owned by Stephen P. Joslin of Waitsfield. By 1870 there were only a handful of large dairy operations on the hills and the typical hill farm in Fayston had one to four cows and a perhaps a few sheep. In the valleys and plateaus such as in Waitsfield, a dairy of 10 or more cows was more typical and sheep were only found on a few farms.

The most successful farms over time, decade after decade, were those at lower elevations. The plateaus, an upland alternative to the valley floor, as mentioned, became an essential part of the Mad River Valley's strong agricultural history. The Joslin farms of the Waitsfield plateau described above are examples. Stephen P. Joslin owned two adjacent farms – they were the Mad River Valley's largest sheep operations in 1850, by 1860 they had switched to dairy. They again dominated as the largest operations in the Mad River Valley by far, milking 50 cows and 30 cows on two operations while the typical dairy herd was 8 and a large farm milked 20. These upland operations continued to be very strong dairies for over a century until they stopped milking about 1980. Descendant Don Joslin still maintains sheep on one of these farms. Gib and Sue Geiger now own the other, now called Mountain Valley Farm, serving as an event and wedding venue as well as producer of cider, honey and syrup. Another large 19th century upland farm in the Waitsfield plateau was the John Somerville operation. This very strong dairy and butter farm continued as a successful commodity dairy until the 1990s under the ownership of Gordon Eurich. Today, Serena Fox uses part of the Eurich Farm for small diversified farm-sheep, chickens, crops. The rest of the Eurich farm, the land of the Joslin farms, and that of many others in the area is still being used in the large, East Warren-based commodity dairy operation of the Defreest family.

[3] An 1850 typical Fayston hill farm (James Boyce in North Fayston) had 75 improved acres, 200 unimproved acres with a farm value of $600. Boyce had a horse, 6 milk cows, 2 oxen, 7 other cows, 18 sheep and 2 swine. They grew 10 bushels of wheat, 8 of rye, 30 bushels of corn, 70 bushels of potatoes, and 100 bushels of oats. They produced 30 lbs of wool, $6 worth of orchard products, 200 lbs of butter, 15 tons of hay, 400 lbs of sugar, $10 worth of other home-manufactured products, and $60 of animals slaughtered for meat. A typical valley farm in Waitsfield in 1850 (C. Matthew) of 200 improved and 100 unimproved acres was valued at $4500. They had 5 horses, 10 milk cows, 2 oxen, 15 other cows, 20 sheep, and 8 swine. The farm raised no wheat or rye but 100 bushels of corn, 150 of potatoes, and 75 of oats. They produced 450 lbs of wool, 200 of butter, and 700 of sugar with $10 of home-manufactured goods and $75 of slaughtered animals.

Transportation, Mills & Agricultural Processing

Access to reliable transportation and working mills played a role in developing a distinction between the valley and hill farms in the mid to late 19th century. A striking number of large cheese producers were located just outside the Mad River Valley along the Winooski River in Moretown and Duxbury as early as 1860. This area had access to the railroad (and refrigerated cars) in Middlesex.

In contrast, in 1850 and 1860, most of the Mad River Valley's butter and cheese was still produced at a small scale on farm. Instead of relying on poor transportation routes to get raw milk to large creameries, skimming stations were developed near upland farms permitting farmers to separate their milk (cream going to the creamery for butter production and skim going back to feed calves and other livestock). However, to get less perishable goods to a broader market, the long distance to the railroad was overcome by a stagecoach. It ran north up the valley road to Middlesex starting in the early 19th century. By 1844 it ran three times a week and daily by 1864[4].

The east and west access to the valley is hampered by mountain ridges. The five mountain gap roads through the Green Mountain and Northfield Ranges – all of which stand today - provided the only east-west linkage to the Mad River Valley. These roads became areas of settlement concentration surrounded by subsistence hill farms, but weren't as regularly traveled as the north-south route.

Throughout the 19th century industrial support for farmers existed in the Mad River Valley in the form of starch factories for processing potatoes, cider mills and distilleries, wool and grist mills, tanneries, milk skimming stations closer to farms, and later in the 1880s and 1890s, creameries on more major roads where butter and cheese was produced in larger quantities than the earlier on-farm production. The mills and factories were an important factor supporting the local-based and value-added agricultural economy. This support network disappeared in the early 20th century along with many small farms and is now being somewhat re-established today by the Mad River Food Hub, Mad River Localvores and other local food initiative supports.

19th Century Immigration and Hill Farms

Despite the 19th century trend of larger farms in the valleys and smaller farms on the hills, there existed exceptions. A number of high elevation hill farms, notably those of several Irish immigrants, were quite competitive. An interesting example is the 18th century Waitsfield farm owned in the 1850s by Irish immigrant Jeremiah Haley. The 1858 map shows this high elevation hilltop farm (See "Haley/Shea Farm" in Fig. 13) located between the peaks of Bald and Waitsfield Mountains on the extension of present day Floodwoods Road, which once connected to Moretown. According to the Agricultural Census of 1860, this seemingly out of the way location played host to one of the top butter-making farms in Waitsfield with one of the largest dairy herds of 24 cows. However, its star shined only briefly and may have been too hard to sustain. Haley left by 1870 and the farm became a much smaller operation run by another Irish immigrant Dennis Shea. By the time local Waitsfield historian, Richard Bisbee described this

area, known as East Hill as he knew it in the 1920s and 30s, it had long since ceased to be farmed[4].

The McLaughlin/Knoll farm (see Fig. 13) in Fayston is another example of the large numbers of older hill farms purchased and run successfully by immigrants in the later 19th century. The 18th century farm of 139 marginal upland acres was available inexpensively enough to be financially viable. The McLaughlin family, having left tough times in Ireland, bought the farm in 1874 after a short stint renting in Waitsfield. Three generations of the family experienced much success there with a house added in 1904 and a large, barn re-located from Moretown in 1923[5].

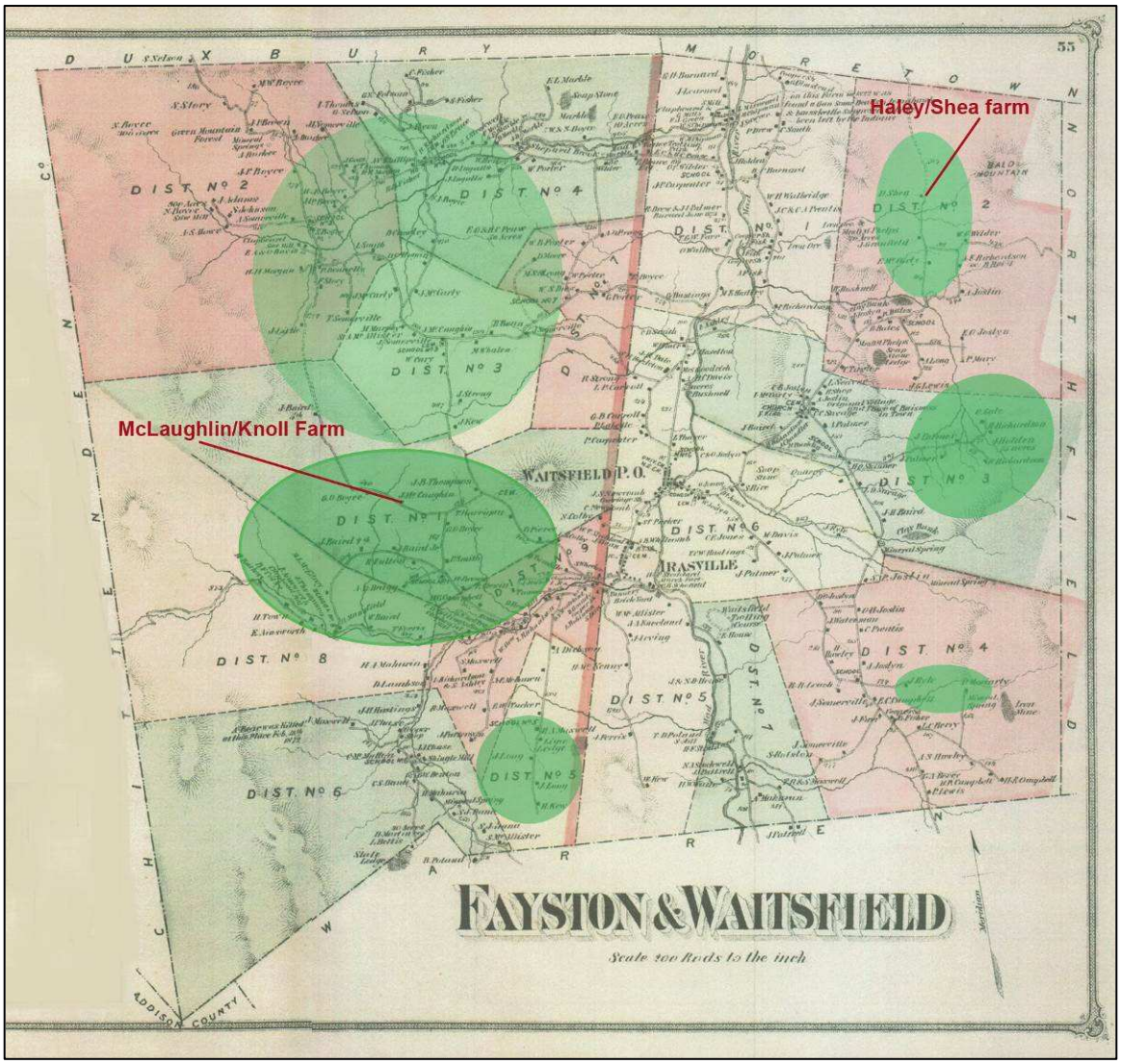
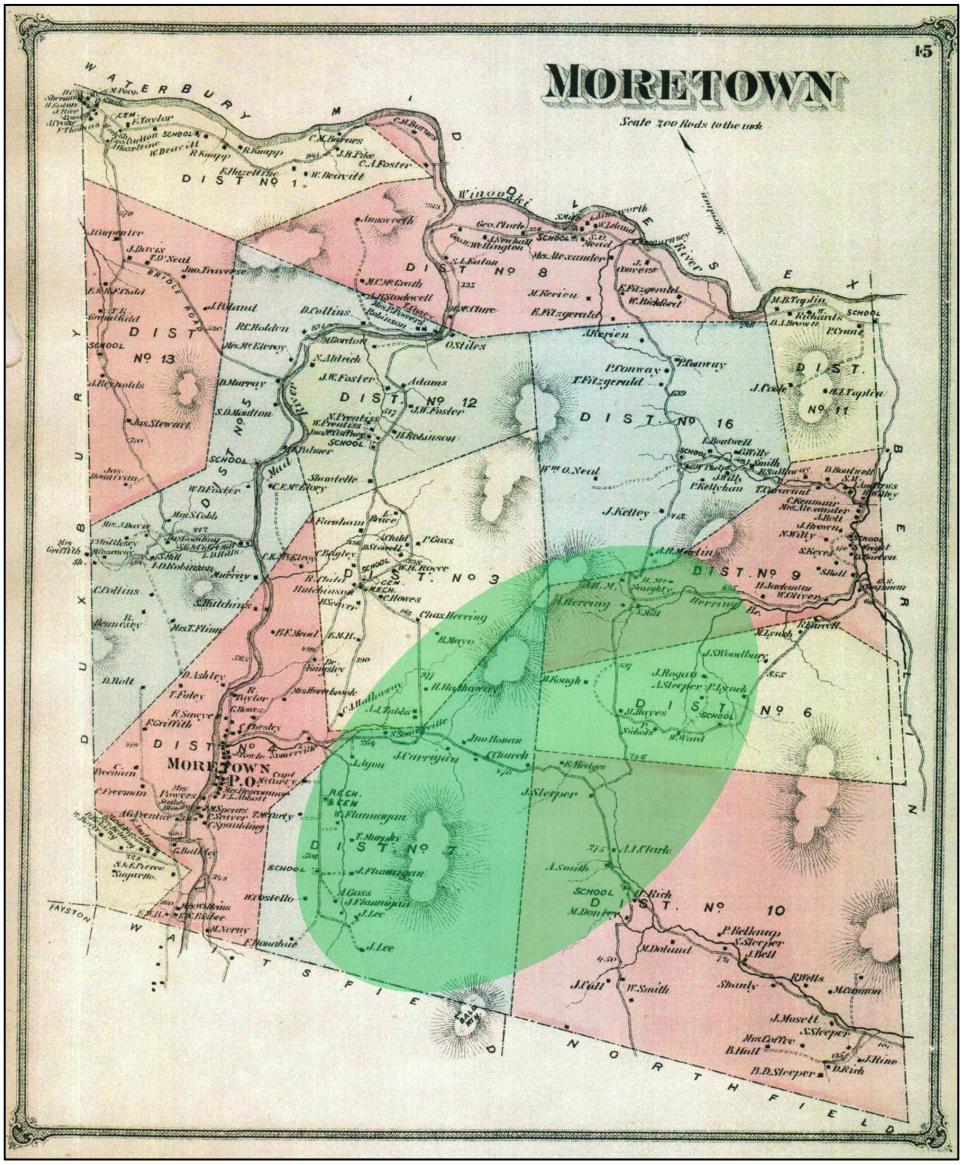


Fig. 13. An 1873 Beers map annotated with concentrations of Irish and Canadian immigrants in green. Location of McLaughlin/Knoll farm in Fayston and Haley/Shea farm in Waitsfield labeled.

[4] Bisbee, 36-62. In the 1960s this farm and several others in the East Hill area were developed into the Floodwoods beef farm by the Richards family. It is still in operation today.

[5] This property is the Knoll Farm, current home of the land-based leadership development organization Center for Whole Communities, but also host to numerous farming operations (Icelandic sheep, organic blueberries, etc).

Generally, the farms of Irish, and some French Canadian, immigrants were concentrated in the hillier uplands of Moretown, Fayston, and to lesser extent Duxbury. The successes of these immigrant farm families as chronicled in the U.S. Agricultural surveys is all the more remarkable given the land they started with. The wave of immigration in the Mad River Valley produced a hill farm renaissance for a few decades. However, the challenges of farming marginal land eventually lead to hill farm abandonment and a concentration of agricultural activity on the valley floor and plateaus. Those tenacious families that remained on hill farms always hedged their bets against harsh economic times with various small cash crops.



An 1873 Moretown Beers Map annotated with concentrations of Irish and Canadian immigrants in green. In Moretown's 1860 census, 88 out of its 293 families, or 30%, were immigrants, (66 of these from Ireland)

1880 Through 1920: Small, Diverse Hill Farms

The shift to dairy in the Mad River Valley's largest farms on the valley floor and the upland plateaus became well established by the 1880s. The US Agricultural Census data illuminates that the Mad River Valley's hill farms remained diversified through the 19th and early 20th centuries. The 1889 Childs Gazetteer & Directory provides a snapshot of the breadth of farming in the Mad River Valley. The Directory identifies nearly every Mad River Valley resident as a "farmer," but only some are listed as specifically having cows. This indicates that diversified, small, subsistence farms were the norm throughout the region including the hills but only some had enough cows to engage in the commodity dairy market. The lowest percentages of dairy operations were in hillier Fayston (14%) and Moretown (19%), while there were 39% in Waitsfield and 55% in Warren. Half the dairies in Waitsfield were in the valley and half were on the eastern upland plateau and hills. In Warren, a few of the larger operations were in the valley, but most were on either the eastern or western hills. There were many who listed that they leased land, especially in Moretown, or owned land in multiple towns. Overall the farm acreages listed had increased since the 1870 agricultural census, suggesting farm consolidation and leasing of former small farms by larger operations. The use of "timberland" and "mountain land" acreage was noted throughout, especially by several of the lumber mill operators. There were a fair number of sugar bushes noted as well, especially in Warren and Waitsfield, suggesting the growing importance of logging and maple sugar as auxiliary farm income.

Local resident Fred Messer noted that his family's valley farm in Waitsfield consisted of a 1000-acre holding extending east-west from ridge to ridge at the turn of the 20th century. This was an example of how the larger valley and upland plateau farms used the former hill farms in their operations. The upland pastures and hay fields supplemented the dairy while the considerable woodlots up high on the ridges supplied sap for the family's three sugarhouses. This was one of the valley farms that continued as a successful commodity dairy into the 1960s.

The Directory also lists many with multiple occupations such as "blacksmith, farmer" or "carpenter, joiner, farmer." Even well into the twentieth century, the basic subsistence farm was still very much alive throughout the hills providing the basis for supplying the needs of many Vermont households – a trait that allowed Vermont to be much more resilient in the Great Depression than many other states. Local residents who grew up on farms in the 1930s to the 1950s remember the difficulty of farm life, the isolation on the hills, the self-sufficiency of the surviving small farms and the variety of ways farmers made ends meet. Gordon Eurich, Fred Messer, and Brad Graves, recall their dairy farmer parents taking in laundry, cleaning houses, driving a school bus, trucking livestock, logging, or driving a night taxi all in addition to milking and chores.[6]

[6] These tough farm families were the Vermonters who greeted the many young people who moved to the Mad River Valley in the 1960s and 1970s. The newcomers who created developments such as Prickly Mountain adopted and modeled the can-do and resourceful attitudes of the farmers and ended up creating many businesses that reinvigorated the local economy. The Howes Family in Moretown operated a slaughter house until the late 70's serving locals who raised their own animals. This extra income helped supplement their farm and income and it supported local diversified food production. Their services made growing meat more accessible to individual families. The Mad River Food Hub is bringing some of these services back to the Valley.

A specialized diversification trend of the late 19th century was the rise of stock breeding as a primary or auxiliary source of income for farmers. In response to the rapidly diminishing viability of commodity wool during the later 19th century, a few Mad River Valley farmers re-focused their sheep and dairy expertise towards stock breeding. Horse breeding became a specialty of Waitsfield and Moretown. The cows bred in the late 19th century were often a dual-purpose breed (milk and meat), such as the Devon or Durham, and were especially marketed to western farmers who were in a better position to produce beef. Though most major breeder/dealers were located in the valley near transportation, especially those in Moretown, a few were on the uplands.[7]

Farm Abandonment in Mad River Valley's Hills

By the end of the 19th century, intense competition from western farm products continued and led many to abandon the small subsistence farms settled in the late 18th century on the highest sections of Vermont's hills. So much work was required to earn a living on the thin, rocky soils compared to other areas of town that owners simply left, selling or leasing the land to others for high pasture, wood lots, or sugar bushes.[8]

Around 1900, empty, run down houses and collapsing barns dotting the hills were quite visible in the open old pastures and meadows. The spectacle of abandoned hill farms was written about extensively as a statewide crisis. These are the cellar holes and stonewalls now found in the mature woods at higher elevations.

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[7] In the 1889 Child's Gazetteer and directory of Washington County, there were 2 cattle breeders in Moretown and 14 in Waitsfield offering not only the dual purpose Durhams, Devons and Shorthorns, but also the dairy breeds of Jersey and Holstein. Andrew Long (farm on Long Road), Oramel Joslin (now the Mountain Valley Farm on Common Road), and Florence McCarthy (in East Hill area) were upland Waitsfield cattle breeders. There were 3 horse breeders in Moretown and 5 in Waitsfield who were advertising breeding lines and stallions descended from Justin Morgan's original Morgan stallion. Joseph Palmer, Florence McCarthy, Lucius Savage, and John Waterman were upland Waitsfield horse breeders. Andrew Long, Oramel Joslin, and Florence McCarthy were upland Waitsfield cattle breeders. Joseph Palmer, Florence McCarthy, Lucius Savage, and John Waterman were upland Waitsfield horse breeders. The other breeders in Waitsfield and those in Moretown and Warren were all located in the valley.

One example of a successful Waitsfield farmer turned stock breeder was that of the Palmer family. The 1889 Gazetteer listed Julius Palmer as a major breeder of Durham cattle and Black Hawk pedigreed horses. Current Waitsfield resident, Fred Messer, recounts that his great-grandfather – Fred Palmer, son of Julius, specialized in training and breeding oxen on their large valley farm.

[8] Richard M. Bisbee's portrait of his childhood Waitsfield neighborhood of East Hill which is an area uphill (north and west) of Waitsfield Common (pp36-62), shows that the 20th century dawned with the land of some former subsistence hill farms being used by a few small dairies still hanging on though often supplementing with other income like apples, lumbering and sugaring. Family subsistence farms that helped some make it through the Depression years would soon disappear. Bisbee writes that of the 11 old 18th century farms – including the Haley mountain-top farm mentioned earlier - that made up the East Hill neighborhood, only 5 dairies were left by the 1930s. These remaining five were larger, having consolidated and were using all the land of the older farms. However, none of the dairies were still operating after World War II. Much of the earlier farmland in this area is currently being used again in the current Floodwoods Farm's Belted Galloway beef operation, run by Toby Richards, as well as Earl Jones for his sugaring operation.

In a recent interview, 4th generation Warren resident Ken Blair reiterated a story his father Rupert Blair told in an earlier recorded oral history[9]. In 1896 the Blair family moved "down" from their high hilltop farm that they had settled in the 1870s near Buzzell Road in the Prickly Mountain area to more profitable farmland on the upland plateau of Fuller Hill Road in East Warren. This was a common story and a number of farms on high hills of the 1860s and 1870s were no longer farmed several decades later. Ken Blair now lives on the high land once owned by his great grandparents and notes it was never farmed after 1900 and now consists of a mature hardwood forest.

The Senor and Old County Roads in East Warren once connected many farms high on the hillsides which ceased being farmed by 1920. Many of the Mad River Valley's new homes with great views have been built among these former farmsteads, resulting in the re-opening of long abandoned roads and discovery of abandoned farm equipment.

Early 20th Century Stories: Making Ends Meet

Members of the Graves family that had dairy farms in Waitsfield Common since the late 19th century recalled that to make ends meet in the 1930s through the 1960s neighboring farms would share both labor and expensive machinery. Haying and harvesting forage crops became a community effort as the combined team of people and implements went from farm to farm. In the 1930s, instead of selling milk wholesale like most in the Mad River Valley, E.S. Graves built his own processing plant – the Glenview Dairy - and developed a retail milk route through the Mad River Valley enlisting his nephew Brad Graves, and using on occasion the milk of both his and his brother's herds.

As described by several older Mad River Valley residents in oral history interviews[10], Ward Lumber Co. was a major employer of small farmers who would join the mill crews or logging operations in the winter while their wives tended the cows. Ward and others in the lumber industry also bought hundreds of acres of woodland that had been dotted with subsistence farms in the 18th and early 19th centuries. They also continued buying failing upland farms in the 20th century and turned them into tree plantations.

The McLaughlin family sold its 150 year-old Fayston hill farm to Burton Ward in 1935 to be used as a woodlot after they couldn't keep it going as a farm. Ward only used it for a few years before it was sold again to a couple who ran it as the Knoll Farm/inn – another 20th century market trend that would have an impact on Mad River Valley's remaining upland farms. Later the Knoll Farm became the Center for Whole Communities, a 21st century trend in sustaining farmland and teaching farming.

[9] Blair, Ken interview with author, October 2012 and Rupert Blair story– *from "Visit'n: Conversations with Vermonters"(Vt Folklife Center Vol. 3 1997).*

[10] Vermont Folklife Center. *Mad River Valley: Crucible of Change,* 1995.

Forestry and Hospitality as Off-farm Income

The Mad River Valley's forested higher elevation land has provided great opportunity for the forest-based production of lumbering and sugaring, which supplemented many family farms. Water power along the Mad River and its tributaries enabled many forestry products to be finished locally in sawmills and factories. Products included shingles, lumber, butter tubs, and bobbins. This anchored the Mad River Valley's lumbering operations and by the 20th century several, like Ward Lumber, were quite dominant economically. The upper hills, many of which had been cleared as sheep pastures in the early 19th century, were often abandoned for farming and started to re-forest. By 1900 and through the 20th century maple sugaring grew as an important component of many local farms.

In other parts of Vermont major water and steam-based manufacturing industries, like machine tools and textiles, drew struggling farmers away from their hill farms to work in factories and move to growing towns. However, in the Mad River Valley, the presence of the forestry-based industry provided a local market for the land and trees on agriculturally unproductive high terrain, thus helping to supplement and sustain many small family farms.

By the time the logging industry started to decline, the 1947 development of Mad River Glen Ski Area marked the burgeoning of a new "industry" that would provide new seasonal employment of local farmers[11]. As the development of Sugarbush Ski Area and others followed, the mid-century explosion of skiing and tourism changed the economics of the region. According to several older Mad River Valley residents interviewed for the *Crucible of Change* oral history project in the 1990s and 2000s, the ski areas initially used a lot of labor to maintain trails and equipment; an important employment lifeline for many struggling farmers or former loggers and lumber mill workers. As exemplified by the McLaughlin Farm which became the Knoll Farm Inn, the skiers' need for lodging and preference for picturesque hill farms also meant that farmers could supplement their income by taking in boarders and tourists. Some more modern examples in East Waitsfield are the Joslin Round Barn, Mountain Valley Farm, and the Skinner Barn, where weddings, cultural activities and other events are hosted and hospitality is the new business model for these past and continued farm properties.

Major Shifts in Dairying and the Local Economy 1950s-1980s

As the story of East Hill[12] demonstrates, by the end of World War II, almost all of the Mad River Valley's dairy farms were located on the valley floor or on the eastern upland plateaus. Most farms in the Mad River Valley had electricity, but had not yet made the transition to milking machines, tractors, or bulk tanks. Between the mid-1950s when it was introduced, and the late 1960s when it became a condition of the milk processors, the switch from cans to an on-farm refrigerated bulk tank required both a major capital investment and accessibility to milk tank trucks all year long. An additional requirement of milk buyers was that the farms have a concrete

[11] Oral histories, *Mad River Valley*: *Crucible of Change*, Vermont Folklife Center

[12] Located on Fig. 2 map, this area included Bisbee, Haley/Shea, and other farms.

stable floor, which was considered more sanitary. This would have represented a major expense for farmers with traditional wood floor dairy barns.

Year-round access to farms on steep dirt roads was another challenge for the farmers, let alone for bulk tank trucks. Hill farms could be serviced by smaller trucks picking up milk cans, although Bob Vasseur of Bragg Hill in Fayston noted that in winter he had to meet the can truck halfway down the hill. By the late 1960s, milk processors serving Vermont stopped accepting cans at all. The transition from cans to bulk tank trucks meant that if a farm was not accessible to the tank truck, the farmer could no longer compensate for a remote, hill location by bringing their milk to market themselves as they once could with cans.

Bulk tanks and concrete stables were expensive items. In order to make the additional investments required, farmers had to produce more milk, which often required even more investment in the form of larger tractors and implements to make the additional feed, larger barns to house more cows, expensive silos, and manure systems. By 1950, the investments it took to survive in dairy provided a further division between the more marginal hill farms and the traditionally more productive valley farms. Farms in the valley represented good business opportunities. Two current Mad River Valley farm families purchased their valley dairy farms at this time: the Neills and the Hartshorns. Both were soon in the position of expanding in the number of milking cows and in acreage.

A few farms on the upland plateaus and accessible lower hills, such as the Eurich farm in Waitsfield, the Blair farm and Defreest farm in Warren, and the Howes farm in Moretown Common, were also able to expand and upgrade. However, the majority of their hill farm neighbors continued to struggle and many stopped making milk.

The Impact of Real Estate Values

The growth of the Mad River Valley as a ski and tourist destination resulted in a sharp escalation in land values, adding additional pressure on hill farmers who had been struggling for years to make a living. In many instances these farmers took the opportunity to sell their property. The demand for hill land with potential views for second homes resulted in a premium price paid for many of the Mad River Valley's marginal upland farms. An example is the development in the 1960s of Ski Valley Acres on the former Baird farm located in east Waitsfield above the Common Road. The increase in demand for upland real estate fueled steeply rising property taxes on other property in the area, which had the deepest impact on the more marginal farms. This significantly affected the remaining farms and their economic viability. The same pressures of high land values and taxes, as well as the lack of suitable land and uncompetitive growing conditions, have hampered other types of farming throughout Vermont, such as commodity vegetable production.[13]

[13] In contrast to the trend for farm conversion to residential development in Waitsfield and Warren, the Howes hill farm in picturesque Moretown Common has persisted as a commercial dairy on its upland, rolling acres. Duane Howes, the fourth generation to farm the property that had been in his family since 1859, explains that diversification is the key that has kept his farm in operation. In addition to bulk milk, they have always raised a small number of meat animals for local sales, as well as pulp and saw logs. He also works part-time transporting

The pressure of high taxes on working land has been a major factor in the decisions to continue or give up farming for many families. The purchase of development rights by land trusts starting in the late 20th century has helped to address the tax factor for a few key farms. These have usually been the farms with the best prime agricultural soils and so have often been large valley and plateaus farms. More recently, the Vermont Land Trust has conserved some important hill farms as well, like the Bragg farm in Fayston.

In the late 1970s, Vermont developed various forms of tax penalties and reliefs designed to protect agricultural lands. The Vermont Land Gains Tax[14] discourages land speculation. The Current Use Value Assessment law[15] protects owners of productive agricultural land from market value assessments. However, property tax burden continues to be one of the major factors cited by farmers for farm closures.

Dairy Farms in the Late 20th Century

Since 1949, the dairy market had been governed by federal price supports that provided both a minimum price to producers of fluid milk as well as a guaranteed federal market for surplus milk in the storage forms of butter, cheese and dry powder. By the 1980s, the price paid to farmers wasn't keeping up with their increasing costs, pushing many to respond by increasing production (sometimes incurring more debt to do so). This resulted in oversupply within the key dairy states (Minnesota, Wisconsin and California among others), rapidly escalating government purchasing at an unsustainable level. One attempt to address this was the 1986 federal Whole Herd Buyout program. A fixed amount of money was allocated via an auction process. Farms bid an amount per hundredweight of milk they would accept based on their historic production to stop dairying for five years and either export or slaughter the herd. Based on the federal budget for the program bids, between $10 and $22.50 per hundredweight were accepted. While the bulk of buyouts (325) were in California, the nation's 2nd biggest dairy producer, a disproportionate number (187) were in Vermont where so many dairy farmers were already leaving the business. For farmers in areas under development pressure like the Mad River Valley, where the farms themselves had high non-farm market value, it served as a good opportunity for farmers to address debt or financial pressures and/or simply retire. At least three farms in the Mad River Valley participated in the program[16].

The combination of the area's increasing land values in the 1960s and 70s, challenging terrain for farming, increasing fuel and grain prices, and with falling milk prices, resulted in more Mad

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livestock. As noted earlier, the family operated its own slaughterhouse until 1984, when increased regulation made it unsustainable. While he enjoys the views and his neighbors on his hill farm, he acknowledges that the land requires a good deal of extra work to deal with poor drainage and stones. He worries primarily about how property taxes will eventually cripple most farms like his.

[14] Vt. Stat. Ann. Tit. 32, secs. 10001-10010 (1981), See Stephanie J. Kaplan, "*The Effect of Act 250 on Prime Farmland in Vermont*," (*Vermont Law Review*, vol. 6, 1981, 467).

[15] Vt. Stat. Ann. Tit. 32, secs. 3751-3760 (1981), Kaplan, 468.

[16] 1988 Planning Study of Mad River Valley, chapter on "Agricultural and Open Land Resources", p.40

River Valley dairies going out of business. Between 1965 and 1980, the number of farms went from 35 to 17 – a decrease of 51%.[17] It is likely that the reduction was primarily of upland farms. Statewide, the loss of farms during this period is similar.[18] The state does not track farm statistics in terms of farm location - i.e. hill versus valley. However, interviews with local farmers make clear that most of the remaining successful dairies in the Mad River Valley were anchored by valley land. The remaining farms were larger, maximizing their production through improvement in feed, breeding, land and animal management, and technology. These large and efficient dairy farms of the late 20th century were more suited to commodity competition then those they replaced.

Local Hill Farmers and Their Choices

The 20th century conditions – both economic and physical – for dairy farming in the hills of the Mad River Valley present such a complex set of challenges that each farm family responds in a unique way. There are many factors that go into the choices dairy farmers have made. Many Mad River Valley dairy farmers chose to leave the dairy industry and farming in general over the past 30 years, focusing on their supplemental work full time such as on the Blair farm in East Warren.[19] Others simply retired without family interested in continuing the farm, such as the very successful and productive Eurich farm of the Waitsfield upland plateau.[20] The main

[17] Ibid

[18] Statewide, Vermont went from 25,000 dairy farms in the 1930s to only 9,000 in the mid-1960s, the last time cows outnumbered people in the state. By 1970 the number of dairy farms had reduced to 6,000, though the same acreage was in production indicating that the remaining farms were larger. Since then, the national price-controlled market and increasing production costs and taxes have made dairy farming even more uncertain and challenging. By 1996, the number of farms statewide reduced by another 66% to 2,000, though the number of cows per farm increased. There were only 25% fewer cows and milk production per cow had risen sharply. (Sources are Meeks, Harold *Vermont's Land and Resources [1986]* and other publications by Meeks; as well as UVM's Center for Rural Studies and Vermont Department of Agriculture.)

[19] Ken Blair, who farmed the upland plateau of East Warren, describes the choice his family made in 1988 between getting much larger with great investment or to stop dairying. They opted to leave farming and sell; a decision they have not regretted. The agricultural acreage left by former farmers in recent years both in the valley and on the uplands has so far been sold or leased to a few remaining farmers and remains in agricultural use. This is in contrast to the land left decades earlier on higher terrain that has either reforested or was parceled out and developed.

[20] One of the larger upland dairy operations was that of the Eurich family on the Common Road in Waitsfield, which farmed over 900 acres, including many large flat fields. The old house and schoolhouse are still visible on the Common Road, recently purchased by Serena Fox. This farm had been performing well for 150 years. Known historically, as the Somerville farm, it was one of Mad River Valley leaders in milk production and farm value in the 19th century. Gordon Eurich described how his father returned to the area in 1948 to buy this farm from a member of the family. By 1959 he enlarged the 1942 bank-barn and increased the Holstein milking herd from 32 to approximately 80. After working 100 hours a week running his father's farm for many years, Gordon Eurich sold his cows in 1990 at the age of 50. The Eurich farm was one of the largest and more successful in the Mad River Valley, having made all the investments and upgrades needed over time to operate a commodity dairy. In the end, though, the work still outweighed the compensation. Much of the land is still used by a different dairy farm and protected from development through a conservation easement held by the Vermont Land Trust. Eurich notes that while his upland fields are quite flat, they are rocky and drain poorly. He added tile drainage and practiced crop rotation, but he pointed out that the land's fertility and workability would never compare to that located on the valley floor. Though retired, Gordon Eurich often works for the Defreest farm. It is not uncommon for retired dairy farmers to

commercial dairy operation of the Mad River Valley is now the Defreest Farm in East Warren, which has responded to economic challenges through expansion. It is a good example of the modern Vermont commodity dairy operations that still anchor the statewide agricultural economy. The Defreest Farm is now the primary user of productive agricultural land in the Mad River Valley. The family currently milks over 500 cows and use over 2,000 acres across both the valley floor and upland plateaus, including the fields of the former Eurich Farm.[21] In some dairy farms, the choices of the younger generation led to a switch from dairy to other forms of farming such as on the Hartshorn farm in both the Waitsfield valley and uplands.[22] Yet other hill dairies chose to shift from wholesale commodity dairy to organic or to value-added dairy products like the Von Trapp Farmstead of Waitsfield Common.[23]

Regular flooding and periodic catastrophic events, like the flood of 1927 and 2011's Tropical Storm Irene, are risks of farming on the valley floor. However, it is clear that until recently many Mad River Valley farmers believed the risks were worth taking because of the significant advantages in production and operation costs. Rotation of crops and pasture, application of fertilizer and lime, installation of tile drainage, and even some terracing over decades on the upper fields has helped keep them in use, but on a whole haven't made them comparable to the valley land. This calculus has been done in the context of commodity dairy. Another factor that keeps the upper fields in use today is the scarcity of valley land. All available acreage is needed to sustain increasingly large commodity dairy operations like the Defreest Farm of Warren,

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pick up work with some of the remaining large operations, often continuing to work their former fields. ? If so, that's an interesting element to this story)

[21] The Defreest family moved to the area in 1915 from New York State, with the third generation currently operating the farm. The 1,200 acres under their ownership is primarily upland pasture and woods. They rent 1,000 acres of valley floor and flat upland fields for pasture, corn and hay. David Defreest notes that the farm's operation is a tremendous amount of work and that it couldn't be sustainable without his large family workforce. This is the factor he sees as most threatening to the survival of dairy in the Mad River Valley. He noted that if the Neill Farm, a productive valley farm with the best land in the area that has recently transitioned to beef, can't make it in commercial dairy, it is unlikely it can be sustained for long on the hills.

[22] The choices of the younger generation played a role in the decision of the Hartshorn Farm to end its Waitsfield dairy operation under the whole herd buyout program 30 years ago. The valley-based farm had been using its 225 acres, plus the fields of several other valley floor and hill farms, to support its 150-cow herd. David Hartshorn notes that the whole herd buyout program allowed them to keep the non-milking animals, land and equipment while transitioning gradually to other things. In their case, David started a vegetable and greenhouse operation that has grown and stayed diverse with a variety of specialties, including partnership in an unusual meat operation – Vermont Yak. He sees the localvore movement as the best thing that has ever happened to farming in the Mad River Valley. He's investing in new farming techniques, such in hydroponics, and is optimistic about the future. It should be noted that in a valley dairy operation like the Hartshorn Farm, many hill fields had a role as pasture and some hay lands. However, their transition to a vegetable operation has resulted in no need for them. The Hartshorn Farm's better hill lands may have been re-purposed to their meat operation, with others being used by for commodity dairy by the Defreest Farm. The less productive or accessible lands are more likely to transition to forest and home sites.

[23] The Von Trapp dairy hill farm in Waitsfield Common is a small, 40-cow operation started in 1959 by the parents of the current owners. The parents had shifted to organic milk to maximize the milk income. The second generation took the farm into a new direction in an attempt to achieve sustainability. They have been making on-farm cheese since 2007, aging the product at the Jasper Hill Cellar in the Northeast Kingdom. This has kept their hill land in agricultural use while keeping the operation small. Artisanal cheese production has developed considerably over the past decade to become a viable option for many of Vermont's small farmers.

which though located in the uplands utilizes most of the valley fields for growing corn. Over the last 25 years, and especially now, the calculus applied by some hill farmers has been quite different. Rather than competing in the commodity dairy arena, some have pursued organic dairy, or value-added dairy like the cheese making of the Von Trapp Farmstead. Still others are looking at the local and specialty markets as retail alternatives to commodity farming.

Farming in the 21st Century

Twenty-first century farming in the Mad River Valley consists of a mix of traditional and modern farm pursuits. Small-scale meat production, fruits and vegetables, greenhouses, flowers and nurseries, vineyards, and artisanal cheese have joined more conventional approaches like wholesale dairy, logging, and sugaring. It's striking to note that some of the new artisanal cheeses appear to be a new twist on the farmhouse cheeses of the mid-19th century. Many of these newer operations depend on a mix of a supportive market of affluent neighbors and visitors interested in high quality local foods as well as the ability to reach broader retail markets.

The Localvore movement has brought attention to the renewed possibility and feasibility of agriculture-based small business. By its very nature, the marketing of "local" relieves Mad River Valley farmers from competing with the wholesale and commodity food system. This is strikingly similar to the conditions of the Mad River Valley's hill farms of 200 years ago. Instead, today's farmers focus on giving local markets reasonable retail food choices, such as specialty wholesale sales to restaurants, natural food stores, and co-ops. The Mad River Localvores have championed the development of a local foods economy since its inception in 2006. This group has done much to enhance the agricultural economy in the Valley, helping to create consumer demand for local food and influencing the development of a number of new farms, restaurants, and food processors. The Mad River Food Hub is a local food processing, storage, and distribution facility supporting the local businesses community. The Food Hub opened in 2011 to provide facilities to process meats, fruits and vegetables, finish food products, as well as storage and distribution. These initiatives connect local producers with each other and markets, promoting and assisting a diversity of farming and food processing operations across the region.

The impact of a changing climate on growing conditions is a major factor facing the Mad River Valley's agricultural community. According to Climate Central's February 21, 2013 analysis: "Warming Winters: U.S. Temperature Trends," Vermont is one of five states (all on the northern border) poised to experience the greatest rate of change. Vermont's average winter temperature has risen over 1 degree per decade over the last half century. In 2012, USDA's Plant Hardiness Zone Map was readjusted for the first time since 1990. Though the Mad River Valley's zone did not appear to change, the trends suggest that possibility in the future. On the face of it, warming winters may seem like a boon to cold climate farms. However, some anticipated consequences include new types and increased prevalence of pests and fungi, more frequent and intense storms, and increased average temperature. The increase in temperature has the potential to severely impact traditional cool weather Vermont crops such as sugaring and apples and its tourism based on skiing and fall foliage. If severe flooding becomes a more regular occurrence, the risk/benefit analysis of concentrating farming activity to the fertile river valley fields may be re-calculated.

On the other hand, climate change impacts such as severe drought are now affecting the major farming areas of the Midwest and other parts of the country. These areas have long out-competed Vermont in commodity farming, but that equation could change if the climate impacts are long lasting or grow worse. The Mad River Valley is serving as a case study for a UVM project that is studying climate change in the Lake Champlain Basin, developing forecasts, and exploring agricultural climate change adaptation techniques[24]. This work, which is taking place from 2013-2016, is poised to demystify impacts of a changing climate and position local farmers to effectively address this challenge.

Conclusion

As farming has become increasingly specialized and profit margins smaller, time has shown the need for really good farmland, longer growing seasons, larger fields, cheaper energy, and the ability to maintain more animals. Only a small portion of Vermont's farmland meets such criteria, making competition with the present American farm commodity system a tremendous challenge. As such, very few mainstream commodity dairy farms can be found in the Mad River Valley. Even in the last few years, some of the remaining dairy farms have shifted to beef and raising replacement dairy heifers.

However, a new type of plateau and hill farm is emerging in the Mad River Valley utilizing ecologically conscious methods to grow specialty crops and develop value added products. Two examples are the growth in locally marketed organic produce and artisanal cheese. The farmers engaged in this trend represent both long-time farmers transitioning from commodity or wholesale farming in order to survive and new farmers taking over existing cropland. Examples of these farms on the upland plateaus and hills include the Von Trapp Farmstead cheese operation and Mad River Vineyard in Waitsfield, and the Mountain Flower Farm in Warren. A few are re-using older hillside farms such as the Floodwoods Farm's Belted Galway beef operation on Waitsfield's East Hill, Ploughgate Creamery's new butter operation on Bragg Farm in Fayston, and the organic highbush blueberry and Icelandic sheep operation at Knoll Farm in Fayston.

It appears that the farm model of the hill farm's heyday in the late 18th and early 19th century of small-scale, locally processed and marketed crops is providing a foundation for agriculture in the 21st century. This is happening because the market forces that shape farm decisions are changing dramatically from national to local. Local support services for farmers such as communal processing and marketing are being re-established. The state's farming struggle had always been about staying on the competitive edge of a commodity market or in developing a niche market. That has come to mean Vermont-branded, "local foods" and small scale, on-farm production of value-added products. The State is helping farmers address erosion, fertility loss, soil and energy conservation. Local and regional land trusts are helping offset heavy tax burdens by purchasing development rights. After over a century of farm consolidation serving ever larger commodity dairy operations, small farms have returned. They are growing produce and meats for family and

[24] An example of local farm adaptation is David Hartshorn's new massive hydroponic greenhouse operation, Green Mountain Harvest. The farm, once a commodity dairy operation, has transitioned to increasingly sustainable practices geared to be resilient to climate change challenges like flooding and temperature fluctuation.

local consumption, specialty crops for restaurants, as well as exploring internet-based marketing and modern forms of getting goods to market.

What is the next chapter of the story? The burgeoning local foods movement, new technology, affluent local and regional markets, renewable energy sources, and additional research appear to be resulting in new economically viable uses for previously uncompetitive land, such as smaller operations and hill farms. The recent growth of diversified, small, and specialized farm operations is notable in the Mad River Valley. The larger, flat upland fields found in East Warren, Waitsfield Common and in between are also flood-proof agricultural fields of great value for certain types of products. They hold a tremendous agricultural and community value in the face of climate forecasts highlighting an increase in the frequency of rainstorms that could have negative consequences on valley floor agricultural fields. Protection could be focused on these areas in order to keep them in agricultural use. Land conservation activity and some zoning experiments have attempted to preserve the area's working landscape. An example worth studying for its effectiveness is Warren's Meadowland Overlay Zoning District, which protects viable farmland for future generations by requiring new development to be located outside of designated prime agricultural lands. The Vermont Land Trust has played a role locally in conserving important and historic farms like their recent purchase of the Bragg Farm and in making agricultural land available to new and young farmers.

Many of the factors that shaped farming in the Mad River Valley are still in play today, but are being addressed in new ways and with new tools. The Mad River Valley's terrain and soils continue to be a challenge, but the 21st century trends show that intensive agriculture, creative management and new business models are adapting to the landscape and, in some cases, thriving. The sloping terrain of the Mad River Valley provides air drainage for fruits and berries. Its cold climate upland pastures work well for producing meat and wool from hardy breeds. Its upland plateaus offer flood-proof fields for a variety of crops. Together, with multi-level marketing of local produce, dairy, meat and value-added products, the Mad River Valley's hills hold a marriage of old and new, a return to self-sufficiency and a viable bottom line.

Bibliographic Commentary: The Character of the Mad River Valley

A lot has been written about farming in the Mad River Valley, especially in the past 25 years when regional planning and community interests have collaborated to focus on the preservation, history, and rural resources that make the valley special. There is a wealth of National and State Register of Historic Places documentation and research, such as the Historic Resources of the Mad River Valley Multiple Property Documentation Form, Waitsfield Common Historic District, Mad River Valley Rural Resource District, an historic barn survey, and individual nominations of the McLaughlin (Knoll Farm) and Joslin (Round Barn) farms. There have been several published written and oral histories, like the series of local history writings published by the Waitsfield Telecom Company over the last two decades, *Mad River Valley* (Images of America Series, by John & Ellie Hillferty), Richard Bisbee's 2000 *History of Waitsfield*, *Entering This Land* (history of the Knoll Farm by Jill Keidasch), and *Mad River Valley: A Crucible of Change*, an oral history project of the Vermont Folklife Center. Additionally, historians have written about the Mad River Valley for more than 150 years, starting with accounts by Benjamin Wait himself.

The writing and oral histories describing the MRV's inhabitants and economy are as diverse as its farms and terrain. Can all these voices be talking about the same place? Is it too hilly to settle and thrive on? (Esther Swift) Is it the rugged heaven on earth of Benjamin Wait? (Bisbee, Childs) Are the Mad River uplands the land of "sweet soil" (Bisbee) or rocky hardscrabble (current and recent farmers)? Was Moretown a rough and tumble mill town (Crucible of Change oral histories) or a hill farmer's paradise with cheese magnates? (Zadock Thompson, US Agricultural census) Were the largest, best farms in the valley or on the upland plateau or both? (National Register nominations and interviews with local farmers) Who were the residents? -Rugged settlers seeking more freedom and space (Bisbee), -laid off Irish railroad workers and famine refugees looking for a new start (Mad River Valley Multiple Property Documentation National Register Form), -people moving through as they headed further west (Child, Thompson), -farmers who stayed generation after generation on one farm, (Oral histories and interviews) -lumber mill magnates, -politicians and lawyers (Pogue), successful dairy farmers, famed horse and cow breeders, or tenacious subsistence hill farmers? Are there advantages to farming on hills or not? Interviews with local farmers offer different views. It seems that the variety of land, resources, and residents make all of it true in one-way or another. One thing most authors agree on is that the history of farming in the Mad River Valley is similar to that of Vermont.

Bibliography

Adams, William, ed. *Gazetteer of Washington County, Vt.,1783-1889*. Syracuse, N.Y.: Hamilton Child, 1889.

Beers, F. W. *Atlas of Washington Co., Vermont*. Rutland, Vt.: Charles E. Tuttle, 1971.

Bisbee, Richard M. *History of the Town of Waitsfield*, 1789-2000. Barre, VT: L. Brown & Sons, 2007.

Hilferty, John & Ellie. *The Mad River Valley*. Portsmouth, NH: Arcadia Publishing, 2005

Franke, *Common Ground: Stories of Waterbury to Warren* (video)

Gardner, Frank D. *Traditional American Farming Techniques.* (Originally Published in 1916 as *Successful Farming*) Reprint. Guilford, CT: The Lyons Press, 2001.

Hanson, Calvin D. *"Trotting Cousins: The Morgan and Standardbred Share a historical bond like no other."* Online article in Breed Research section of Morgan Horse Association website.

Hastings, Scott E., Jr. & Elsie R. Hastings. *Up in the Morning Early: Vermont Farm Families in the Thirties.* Hanover, NH: University Press, 1992.

Haynes, Rick. *Fayston Stories.* Waitsfield Telecom directory, 2002.

Haynes, Rick. *Waitsfield History: A Story About Roads.* Waitsfield Telecom directory, 2005-6.

Jones, Matt Bushnell. *History of the Town of Waitsfield, Vermont, 1782-1908 with Family Genealogies*. Boston: George E. Littlefield, 1909.

Kiedaisch, Jill Hindle. *Entering This Land: A History of the Knoll Farm.* Fayston, VT: Center for Whole Communities, 2008.

Mad River Watershed Conservation Partnership. *Vermont's Mad River Valley: A Continuing Legacy.* Brochure, n.d.

Marsh, Earline. *"The Mad River: Heartway of The Valley."* Waitsfield Telecom directory, 1998

Meeks, Harold A. *The Geographic Regions of Vermont: A Study in Maps*. Hanover, NH: Georgraphy Publications at Dartmouth, 1975

Moretown Historical Society. *"A Moretown Sampler."* Waitsfield Telecom directory, 2000.

National Register of Historic Places Nominations:
- *Agricultural Resources of Vermont MPDF, (*Jamele & Gilbertson, *1991)*
- *Joslin Farm*, (Bensinger/Tansey, 1988)
- *Historic Resources of the Mad River Valley MPDF*, (UVM Historic Preservation Program, 1992)
- *Mad River Valley Rural Resource Historic District*, (UVM Historic Preservation Program, 1994)
-*McLaughlin Farm*, (Llewellyn, 1995)
-*Waitsfield Common Historic District (*Sagerman, 2007)

Pogue, Jan. *"Sheep, Shops, Cows and Trees - And, Lest We Forget, Lawyers, A History of Commerce in the Mad River Valley."* Waitsfield Telecom directory, 2009

Sherman, Michael, and Gene Sessions and P. Jeffrey Potash. *Freedom and Unity: A History of Vermont*. Barre, VT: Vermont Historical Society, 2004.

Simko, Annmarie. *Snapshots: Waitsfield Vermont 1789-1989 Bicentennial.* Waitsfield, VT: Iota Press for Waitsfield Bicentennial Committee, 1989.

Swift, Esther Munroe. *Vermont Place Names: Footprints of History.* Camden, ME: Picton Press, 1977.

United States Agricultural Census for Duxbury, Fayston, Moretown, Waitsfield, & Warren in the years 1850, 1860, & 1870.

United States Census for Duxbury, Fayston, Moretown, Waitsfield, & Warren in the years 1850 & 1860

Vermont Folklife Center. *Mad River Valley: Crucible of Change,* 1995 (Oral history recordings)
Vermont Folklife Center *Never Done: Farm Life in Vermont*
Vermont Folklife Center, *Visit'n: Conversations with Vermonters.* Vols. 2 (1996) & 3 (1997). Middlebury, VT: Vermont Folklife Center

Vermont Historic Sites and Structures Surveys

Vermont Land Trust. "Help Protect an Agricultural and Scenic Treasure in the Mad River Valley." Flyer for Campaign to Conserve the Bragg Farm, c. 2012.

Walling. *Washington County, Vermont*. Wall map in the collection of the Vermont Historical Society, 1858.

Wilson, Harold Fisher. *Hill Farms of Northern New England: Its Social and Economic History 1790-1930.* Originally published 1936, reprinted New York: AMS Press, 1967.

Video Interviews by Meg Campbell, October 2012
-David Defreest, Defreest Farm, Warren
-Duane Howes, Howes Dairy Farm, Moretown
-Don Joslin, former farmer, Waitsfield
-David Hartshorn, Hartshorn's Santa Dvida Farm and Vermont Yak Co, Waitsfield
-Elwin Neill, Neill Farm, Waitsfield
-Aaron Locker, Kinsgbury Market Garden, Warren

Telephone Interviews by Lyssa Papazian, October 2012
-Cindy Hartshorn-Jones, Warren Town administrator grew up on Waitsfield dairy farm
-Ken Blair, Warren Lister, former East Warren farmer

Telephone Interview by Lyssa Papazian, December 2012
-Geordie Richards, of Floodwoods Farm, a Belted Galloway beef operation in Waitsfield
Telephone Interviews by Lyssa Papazian, January to February 2013
-Randy Graves, grew up on Waitsfield Commons dairy farm in 1950s
-Karen Graves, grew up on Waitsfield Commons dairy farm in 1950s
-Brad Graves, grew up and worked in Waitsfield dairy farms starting in the 1930s
-Fred Messer, former Waitsfield dairy farmer
-Gordon Eurich, former Waitsfield dairy farmer