Terroir of Finger Lakes Riesling:
Single Vineyard Expressions
Society of Wine Educators 40th Annual Conference
Washington, DC
August 12, 2016
Speakers

• **Lorraine Hems**
  - Lecturer at the Rochester Institute of Technology and New York Wine and Culinary Center
  - CWE, CSS
  - WSET Level 3
  - CS with CMS
  - AWS Certified Wine Judge and Instructor

• **Bob Madill**
  - Wine Industry Liaison, Finger Lakes Wine Alliance
  - Brand Ambassador, Glenora associated wineries
  - Wine Director, Kindred Fare restaurant
  - Board Member, International Riesling Foundation
  - WSET Level 3
  - AWS Certified Wine Judge and Instructor
Finger Lakes Wine Alliance

• Incorporated in 2004
• 29 wineries working together to promote the visibility of the Finger Lakes.
• Mission Statement

To increase the visibility and reputation of the Finger lakes appellation, its wines and wineries; as North America’s pre-eminent cool-climate winegrowing region.
Outline

• FLX location, AVA, geography, geology
• Growing circumstances, Lake-effect, Terroir
• Current FLX Wine Industry
• FLX Riesling
• Tasting of 10 FLX single vineyard Rieslings
• IRF Riesling Taste Profile
Where are the Finger Lakes?
Finger Lakes Geography: 10,000 Years in the Making

- Located in the heart of New York State
- Protected by Lake Ontario (north) and Lake Erie (West)
- 11 long, “finger-like” parallel lakes oriented North to South
- Carved by the Ice Age glacial movement
- Main winegrowing lakes are Keuka, Seneca, and Cayuga
- Among the deepest lakes in North America
  - 450 to 600 feet deep with some reaching below sea level
Finger Lakes Viticultural Area
The Finger Lakes:
United State’s Premier Cool Climate Wine Region
Breathtaking Vineyard and Lake Views
Where are the Finger Lakes?

- Finger Lakes’ vineyards lie between ~ 42°N to 43°N latitude
  - Other US cities in the same range: Boston, Detroit
  - Global in the same range – Northern Hemisphere:
    - California-Oregon border
    - Bandol, France
    - Rioja, Spain
    - Vladivostok (Primorsky Krai), Russia
    - Follonica (Tuscany) Italy
  - Southern Hemisphere
    - Hobart (Tasmania), Australia
    - Trelew (Chabut), Argentina
    - Christchurch, New Zealand
<table>
<thead>
<tr>
<th>Timeline</th>
<th>FLX Terroir 400 million years in the making</th>
</tr>
</thead>
<tbody>
<tr>
<td>Devionian Shales</td>
<td></td>
</tr>
<tr>
<td>x</td>
<td></td>
</tr>
<tr>
<td>millions</td>
<td></td>
</tr>
<tr>
<td>-400</td>
<td></td>
</tr>
<tr>
<td>-300</td>
<td></td>
</tr>
<tr>
<td>-200</td>
<td></td>
</tr>
<tr>
<td>-100</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Pleistocene Glaciation</td>
<td></td>
</tr>
<tr>
<td>Ice Age</td>
<td></td>
</tr>
<tr>
<td>South draining</td>
<td></td>
</tr>
<tr>
<td>U Valleys</td>
<td></td>
</tr>
<tr>
<td>FLX River Valleys</td>
<td></td>
</tr>
<tr>
<td>of lakes</td>
<td></td>
</tr>
<tr>
<td>1st Vines in FLX</td>
<td></td>
</tr>
<tr>
<td>Farm Winery Act</td>
<td></td>
</tr>
<tr>
<td>Pleasant Valley Wine Co.</td>
<td></td>
</tr>
<tr>
<td>Prohibition</td>
<td></td>
</tr>
<tr>
<td>330+ wineries</td>
<td></td>
</tr>
<tr>
<td>European Vines, Va</td>
<td></td>
</tr>
<tr>
<td>x</td>
<td></td>
</tr>
<tr>
<td>1600</td>
<td></td>
</tr>
<tr>
<td>1700</td>
<td></td>
</tr>
<tr>
<td>1800</td>
<td></td>
</tr>
<tr>
<td>1900</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
</tr>
<tr>
<td>Gold Seal</td>
<td></td>
</tr>
<tr>
<td>1st Vinifera</td>
<td></td>
</tr>
<tr>
<td>2000 acres</td>
<td></td>
</tr>
<tr>
<td>50 wine companies</td>
<td></td>
</tr>
</tbody>
</table>
Finger Lakes Geology

- **Terroir of the Finger Lakes New York** (April 2005)
  Larry Meinert, Smith College & Tara Curtin, Hobart & William Smith Colleges

- Finger Lakes includes *microclimates, paleodeltas, and glacial features* that allow some vineyards to stand out from their neighbors.

- The *rocks exposed* are part of the *Late Devonian* clastic wedge that was deposited west of the Acadian mountains in a shallow inland sea.

- A thick veneer of *Pleistocene glacial deposits* in the Finger Lakes region covers the Devonian bedrock.

- Deglaciation of the Laurentide ice sheet is recorded by moraines, till, and glacial outwash, and the *excavation* and infilling of the Finger Lakes.

- ....over-deepened, V-shaped bedrock valleys that the Finger Lakes occupy…
Finger Lakes Geology

• The **paleodeltas** formed at higher lake levels are now **hanging deltas** exposed on hillsides adjacent to the lakes.
• Paleodeltas have a **different grain size distribution** than adjacent glacial till - dramatic changes in vineyard soil characteristics.
• Paleodeltas have been identified at both **Fox Run** and **Sheldrake Point** vineyards and are in other vineyards.
• The **proglacial clay** distal fringes of deltas can **challenge** vineyard drainage whereas the proximal fluvial parts of the deltas can provide ideal drainage.
• Paleodeltas can have a significant effect on **vine vigor** and performance.
Finger Lakes Geology

• Finger Lakes has several different soil series.
• The major differences among these soil series are grain size distribution (texture) and protolith composition, especially the presence of clay and/or limestone in the subsurface or constituting a significant percentage of glacial clasts in till or reworked fluvial sediments.
• Grain size and texture mainly affect drainage, a critical parameter of vineyard performance.
• Limestone affects both Ca content and pH, whereas clay affects the availability of Ca, Mg, and K, all essential vine nutrients...
Geology
Yellow Genessee Group and Tully Limestone Purple Shales
Deep Gorges bound Sheldrake Point Winery
DEEP Lakes - Seneca
Finger Lakes: Topography

- Varying Slopes and Aspects
Why do the Lakes Matter? The Lake Effect

• Lake Ontario to the North & Lake Erie to the West
  – Warm air currents in the winter
  – Cool air currents in the summer
  – Northern FLX vineyards closer and southern farther away

• Depth of Finger lakes provides beneficial “lake effect” to the vineyards planed on the shores

• Warmer minimum temperatures in the winter

• Cooler maximum temperatures in the summer
Why do the Lakes Matter? The Lake Effect

- Great Lakes + FLX “moderates” Continental Climate
- Lake effect = combined distance from a Finger lake, distance from Great Lakes and rise in elevation
- Vineyard character/diversity = distance from water + elevation + glaciated soils + aspect (east/west facing)
- Vineyard locations vary in rainfall & water availability, soil retention capacity
- Seasonal complexity and variation very evident in the wines.
Vineyards Planted East and West on Sloping Lakeshores
Effect of Proximity to Lake Ontario
Winter 2013-2014
Terroir: Sense of Place

- Ancient glacial activity and flooding created in the Finger Lakes produced very complex soil patterns
- The greatest wine-growing regions in the world, the Finger Lakes proudly among them, have soils rich in:
  - Limestone
  - Shale
  - Gravel
- FLX: Gravelly & low organic sites to loamy & fertile
- **Site-Specificity:** Vineyards planted on varying soils show great minerality and fruit characteristics that are specific to underlying soils
Wineries & Vineyards Today

- **Over 130 Finger Lakes wineries**
  - 9,500 acres of grapes
- **23% Vinifera**
  - 2,200 acres
  - 8,400 tons
  - 500,000 cases
- Growing acreage of Vinifera plantings
- Focus on **Riesling (~40%) & Aromatic Whites (~50%)**
- Whites ~65%
  - Chardonnay, Gewurztraminer, Pinot Gris, Gruner Veltliner, Sauvignon Blanc
- Reds
  - Cabernet Franc, Lemberger, Pinot Noir
Wineries & Vineyards Today
2011 USDA Vineyard Survey

FLX Vineyard Area 2011

- Native: 4500 acres
- Hybrid: 2000 acres
- Vinifera: 2000 acres
- Other: 500 acres
Vinifera Plantings

**Finger Lakes Vinifera**

<table>
<thead>
<tr>
<th>Grape Type</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riesling</td>
<td>900</td>
</tr>
<tr>
<td>Chardonnay</td>
<td>300</td>
</tr>
<tr>
<td>Cab Franc</td>
<td>200</td>
</tr>
<tr>
<td>Pinot Noir</td>
<td>100</td>
</tr>
<tr>
<td>Other Vinifera</td>
<td>50</td>
</tr>
<tr>
<td>Gewurztraminer</td>
<td>40</td>
</tr>
<tr>
<td>Cab Sauvignon</td>
<td>30</td>
</tr>
<tr>
<td>Merlot</td>
<td>20</td>
</tr>
<tr>
<td>Pinot Gris</td>
<td>10</td>
</tr>
<tr>
<td>Sauvignon Blanc</td>
<td>5</td>
</tr>
</tbody>
</table>
Riesling: King of Finger Lakes Whites

- ~950 acres
- + 60% since 2006
- ~3800 tons
- ~230,000 cases
- ~5% of U.S. Riesling market
- Even-distribution of Dry, Med-Dry, Med-Sweet

- Stylistic diversity
- **Dry**
  - Lean, taut
- **Med Dry & Med Sweet**
  - Lush, with balanced acidity
- **Sweet**
  - Dessert-style (Ice Wine, Late-Harvest)
- **Sparkling**
  - Small quantities
## Finger Lakes Vintages

### Finger Lakes Vintage Weather

<table>
<thead>
<tr>
<th>Year</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>GDD Year</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>mild</td>
<td>warm</td>
<td>warm</td>
<td>short harvest</td>
<td>2924</td>
<td>very warm &amp; wet</td>
</tr>
<tr>
<td></td>
<td>early spring</td>
<td>heavy &amp; short rains</td>
<td></td>
<td>rain in Oct</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>average</td>
<td>cool &amp; wet</td>
<td>wet May</td>
<td>overcast, wet</td>
<td>2830</td>
<td>warm &amp; wet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>dry June</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>average</td>
<td>warm</td>
<td>dry</td>
<td>early harvest</td>
<td>2870</td>
<td>exceptional</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>rains in late Sept</td>
<td></td>
<td>reds &amp; whites</td>
</tr>
<tr>
<td>2013</td>
<td>average</td>
<td>slow warming</td>
<td>a bit cooler</td>
<td>dryer</td>
<td>2575</td>
<td>a bit cooler &amp; wetter</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>a bit wetter</td>
<td></td>
<td></td>
<td>average wines</td>
</tr>
<tr>
<td>2014</td>
<td>colder than norm</td>
<td>average</td>
<td>average</td>
<td>cooler</td>
<td>2478</td>
<td>close to average</td>
</tr>
<tr>
<td></td>
<td>some injury</td>
<td></td>
<td>cooler</td>
<td>normal</td>
<td></td>
<td>fresh whites &amp; reds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>very wet July</td>
<td>very wet</td>
<td>very dry Sept</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>colder than norm</td>
<td>a bit warmer</td>
<td>very wet June</td>
<td>warmer &amp; dry Sept</td>
<td>2657</td>
<td>lighter crop</td>
</tr>
<tr>
<td></td>
<td>some injury</td>
<td></td>
<td>a bit drier</td>
<td>an early vintage</td>
<td></td>
<td>good balance &amp; expression</td>
</tr>
</tbody>
</table>

**GDD = growing degree days - over 50 and under 89**
Recent Vintages
Growing Degree Days

LT Avg. = rolling 10 year average
GDD=Sum (Daily Max Temp-Min Temp)/2-50 April to Oct. 31
Recent Vintages Rainfall

<table>
<thead>
<tr>
<th>Month</th>
<th>2013</th>
<th>2014</th>
<th>Long-term avg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>April</td>
<td>3.00</td>
<td>3.00</td>
<td>2.50</td>
</tr>
<tr>
<td>May</td>
<td>4.00</td>
<td>4.50</td>
<td>3.00</td>
</tr>
<tr>
<td>June</td>
<td>5.00</td>
<td>5.00</td>
<td>4.00</td>
</tr>
<tr>
<td>July</td>
<td>9.00</td>
<td>7.00</td>
<td>6.50</td>
</tr>
<tr>
<td>August</td>
<td>4.00</td>
<td>4.00</td>
<td>3.50</td>
</tr>
<tr>
<td>September</td>
<td>3.00</td>
<td>2.50</td>
<td>3.00</td>
</tr>
<tr>
<td>October</td>
<td>3.00</td>
<td>3.50</td>
<td>3.50</td>
</tr>
</tbody>
</table>

Long-term average values are shown for comparison.
International Riesling Foundation (IRF)

- Riesling Taste Profile
  - A quick way to understand balance
  - Voluntary participation to inform and educate
  - Ratio of residual sugar/acidity
The International Riesling Foundation’s Riesling Taste Profile

www.drinkriesling.com
FLX Wineries

- Fox Run
- Boundary Breaks
- Wagner
- Lamoreaux
- Humphrey's
- Dalrymple
- Tango
- Oaks
- Lahoma

Map credits: Google Earth (Imagery Date: 7/15/2015)
# Tasting of FLX Single Vineyard Riesling

<table>
<thead>
<tr>
<th></th>
<th>Winery</th>
<th>Variety</th>
<th>Year</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wagner, Dry, Caywood East</td>
<td>2014</td>
<td>$17.99</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Red Newt, Lahoma ‘The Knoll’</td>
<td>2014</td>
<td>$35.00</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Red Newt, Tango Oaks</td>
<td>2014</td>
<td>$25.00</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Sheldrake Point, Dry, Reserve (blk 2)</td>
<td>2013</td>
<td>$35.00</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Keuka Spring, Humphrey’s</td>
<td>2014</td>
<td>$21.99</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Boundary Breaks, Dry, ‘239’</td>
<td>2014</td>
<td>$19.95</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Lamoreaux Landing, Riesling, Red Oak</td>
<td>2014</td>
<td>$23.99</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Glenora, Select Harvest, Dalrymple</td>
<td>2012</td>
<td>$19.99</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Boundary Breaks, Reserve, ‘198’</td>
<td>2014</td>
<td>$22.95</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Fox Run, Riesling 12, Lake Dana</td>
<td>2012</td>
<td>$30.00</td>
<td></td>
</tr>
</tbody>
</table>
# Tasting of FLX Single Vineyard Riesling

<table>
<thead>
<tr>
<th></th>
<th>rs</th>
<th>Ta</th>
<th>IRF</th>
<th>pH</th>
<th>alc%</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>5</td>
<td>8.7</td>
<td>0.6</td>
<td>3.0</td>
<td>12.3</td>
<td>497</td>
</tr>
<tr>
<td>2.</td>
<td>5</td>
<td>7.5</td>
<td>0.7</td>
<td>3.1</td>
<td>12.6</td>
<td>177</td>
</tr>
<tr>
<td>3.</td>
<td>4</td>
<td>6.6</td>
<td>0.6</td>
<td>3.3</td>
<td>12.1</td>
<td>121</td>
</tr>
<tr>
<td>4.</td>
<td>7</td>
<td>7.6</td>
<td>0.9</td>
<td>3.0</td>
<td>11.4</td>
<td>184</td>
</tr>
<tr>
<td>5.</td>
<td>7</td>
<td>?</td>
<td>~1</td>
<td>3.1</td>
<td>12.0</td>
<td>200</td>
</tr>
<tr>
<td>6.</td>
<td>8</td>
<td>7.5</td>
<td>1.1</td>
<td>3.0</td>
<td>12.8</td>
<td>2100</td>
</tr>
<tr>
<td>7.</td>
<td>10</td>
<td>6.3</td>
<td>1.6</td>
<td>3.1</td>
<td>12.2</td>
<td>?</td>
</tr>
<tr>
<td>8.</td>
<td>39</td>
<td>7.4</td>
<td>5.3</td>
<td>2.9</td>
<td>11.0</td>
<td>387</td>
</tr>
<tr>
<td>9.</td>
<td>68</td>
<td>9.8</td>
<td>7.0</td>
<td>2.9</td>
<td>9.4</td>
<td>450</td>
</tr>
<tr>
<td>10.</td>
<td>64</td>
<td>7.4</td>
<td>8.6</td>
<td>3.0</td>
<td>11.3</td>
<td>42</td>
</tr>
</tbody>
</table>
Wagner Caywood East (looking East)
Wagner Caywood East
Wagner Caywood East

- West facing & steeply sloped
- In 2005 replanted to Riesling on Scott-Henry
- Three clones - 90, 110, 239 (all German)
- Fermented in separate lots and blended
- Blend – 90 (90%), 110 (5%), 239 (5%)
Red Newt Lahoma & Tango Oaks
Red Newt Lahoma Vineyard
Lahoma ‘The Knoll’
Lahoma ‘The Knoll’

- Seneca Lake, west shore, facing east south east
- 2/3rds of a mile from Seneca Lake
- Owned by Harlan and Kenny Fulkerson
- 100 acres – 40% vinifera
- The Knoll is 2 acres within a 15 acre long term contract
- Planted in 2008 on Lancing and Dunkirk soils
- Sandy soils – excellent drainage & sun exposure - pristine fruit
- Riesling (clone 239 on 3309 rootstock)
- Average yields of 2.4 tons/acre
Red Newt Lahoma & Tango Oaks
Tango Oaks Howard Gravelly Loam
Tango Oaks

• 5 acre block planted in 2007
• Alsace clone 49 on low vigor 10114 root stock
• Deep gravel over shale – low vigor
• Well drained & west facing
• Great sun exposure
• Reductive winemaking – prefermentation cold soak and lees contact
Sheldrake Point Vineyard
Sheldrake Point Vineyard
Sheldrake Point Block R2
Sheldrake Point Block R2

- Established in 1997 – 40 acres planted
- R2 faces East at top of vineyard
- Planted in 1999 – clone 239
- Least vigorous and driest block
- Small berries and clean fruit
- Reserve wine initiated in 2003
- Minimal intervention – only yeast, nutrients, SO2
- Held back for one year
Keuka Spring Humphrey’s Vineyard
Humphrey’s Vineyard
Humphrey’s Vineyard

- Facing east on a gentle slope near to Seneca Lake
- Rows run east to west – most in the FLX are north to south
- Picked later than other blocks as ripens more slowly
- “Winery of the Year” 2016 - Riesling & Gewurztraminer
Boundary Breaks
Boundary Breaks
Boundary Breaks Vineyard
Boundary Breaks Vineyard

- East side Seneca Lake facing west – sun exposure.
- Close to lake (temperature moderation)
- Planted in 2009 and 2010 as single clone (genetically identical) blocks.
- Picked on October 28, 2014 at 23.5 brix (13.4% alc.)
- Auslese is 20 to 23.9 brix – Clone 239 is ~ Auslese Trocken
Lamoreaux Landing Red Oaks
Lamoreaux Landing Vineyards
Dalrymple Vineyard
Glenora Select Harvest Riesling from Dalrymple Vineyard
Dalrymple Vineyard

• 40 year old vines on the East side of Seneca Lake
• Face West – sloped and well drained
Glenora Select Harvest Dalrymple Vineyard
Fox Run Lake Dana Vineyard
Fox Run Lake Dana Vineyard
Fox Run Lake Dana

• Planted in 1989
• Facing East
• Well drained soils
Selbach-Hobbs Vineyard

- Johannes Selbach (Mosel) & Paul Hobbs (California, Argentina)
- 67 acres on steep, west facing slope
- Shale
- ~ 23 acres Riesling planted to date east to west (up and down slope)
- FLX sourced vines
- 1815 vines per acre average
- 2.3 acres planted in 2014 at 2400 vines/acre
Selbach-Hobbs Vineyard Site
August 2016
Vineyard Site Spring 2016
Acknowledgements

• Finger Lakes Wine Alliance
  – www.fingerlakeswinealliance.com

• Cornell Cooperative Extension Finger Lakes Grape Program
  – www.flgp.cce.cornell.edu/

• Society of Wine Educators
  – www.societyofwineeducators.org/
Acknowledgements

- Wagner Vineyards
- Chateau Lafayette Reneau
- Hector Wine Company
- Sheldrake Point Winery
- Keuka Spring Vineyards
- Thirsty Owl Wine Company
- Damiani Wine Cellars
- Red Newt Cellars Winery
- Chateau Frank
- Glenora Wine Cellars
Thank you!
Lorraine Hems – lehism@rit.edu
Bob Madill – rjmadill@gmail.com
The Finger Lakes: America’s Premier Cool-Climate Wine Region