FEEDING HUMANS

Harry Carr 7-15-2014
CRISES: EARTH’S CARRYING CAPACITY EXCEEDED BY 50%

- population growth
- climate change
- peak oil and unburnable carbon
- soil erosion
- loss of farmland
- water scarcity
- health care
- aging farmers-unemployed youth
MOVEMENT TO CITIES


- World
- More developed regions
- Africa
- Asia
- Latin America and the Caribbean
PROPOSITIONS - RETHINKING OUR FOOD SYSTEM

- bringing people back to the land
- carbon sequestration with perennial systems
  - Layering of trees, understory, shrubs, plants, ground covers, vines, roots
- Multi-species grazing
- human and animal power
- rainwater harvesting
- nourishing nutrient dense anti inflammation diet
- farmer training internships in Agro-Ecology
# Properties of Natural Ecosystems Compared with Sustainable and Conventional Agroecosystems

by Professor Stephen R. Gliessman 1997

<table>
<thead>
<tr>
<th></th>
<th>Natural Ecosystems</th>
<th>Sustainable Agro-ecosystems</th>
<th>Conventional Agroecosystems</th>
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</thead>
<tbody>
<tr>
<td>Production (yield)</td>
<td>low</td>
<td>low/medium</td>
<td>high</td>
</tr>
<tr>
<td>Productivity (process)</td>
<td>medium</td>
<td>medium/high</td>
<td>low/medium</td>
</tr>
<tr>
<td>Diversity</td>
<td>high</td>
<td>medium</td>
<td>low</td>
</tr>
<tr>
<td>Resilience</td>
<td>high</td>
<td>medium</td>
<td>low</td>
</tr>
<tr>
<td>Output Stability</td>
<td>medium</td>
<td>low/medium</td>
<td>high</td>
</tr>
<tr>
<td>Flexibility</td>
<td>high</td>
<td>medium</td>
<td>low</td>
</tr>
<tr>
<td>Human Displacement of Ecological Processes</td>
<td>low</td>
<td>medium</td>
<td>high</td>
</tr>
<tr>
<td>Reliance on External Human Inputs</td>
<td>low</td>
<td>medium</td>
<td>high</td>
</tr>
<tr>
<td>Autonomy</td>
<td>high</td>
<td>high</td>
<td>low</td>
</tr>
<tr>
<td>Sustainability</td>
<td>high</td>
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</table>
MULTI-SPECIES GRAZING

Grow topsoil/sequester carbon

- Mimic tallgrass prairie
- Relationship of bison, elk, etc. & predators.
  - Trampled huge amounts grasses
  - Not all eaten
  - Created thick thatch to hold moisture and soil biology.
ROOT GROWTH ANNUAL VERSUS PERENNIAL
WATER SUPPLY 2050

Water Supply Sustainability Index (2050) With Climate Change Impacts

Number of Counties for each Category in Parentheses
- Extreme (412)
- Moderate (1,192)
- High (608)
- Low (929)
WATER USAGE IN NATURE

- Extreme depth of tall grass prairie sod.
- More organic matter = More water retention
- Roots bring in air and hold soil fast preventing erosion and allowing the water to percolate into deep extensive root systems
KEYLINE DESIGN

- Imaginary point on the lay of the land where the convex ridges meet the concave valleys
KEYLINE PLOWING
US HEALTHCARE SPENDING AS A % OF GDP

Source: OECD
Accessed 2012-09-10 18:20
AG LAND LOSS

Per capita farmland acres for each U.S. resident

<table>
<thead>
<tr>
<th>Year</th>
<th>Acres per person</th>
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<tr>
<td>1997</td>
<td>1.4</td>
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<tr>
<td>2100</td>
<td>0.46</td>
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WRAP UP
WHAT’S GOING ON AT MINT CREEK FARM

- INTERNSHIPS AND FARMER TRAINING
- MAXIMIZE VALUE TO CUSTOMER
- INCREASE VALUE ADDED PRODUCTS
- MARKET THE WHOLE ANIMAL
- ECONOMICS