



From Buckthorn to Bioenergy: How Minnesota is Linking Habitat Restoration to Bioenergy and Local Economies

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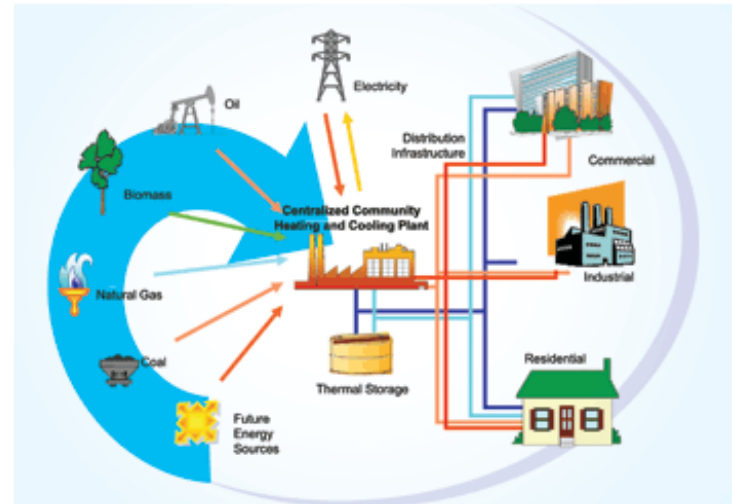
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2007: Linking Habitat Restoration to Bioenergy

Innovative new project that unites two separate but linked aspects of environmental health:



Habitat Restoration



Bioenergy



Linking Habitat Restoration to Bioenergy

- In 2007, the Minnesota legislature appropriated \$4,500,000 to study renewable energy options for Rock-Tenn
- \$500,000 for ecological restoration by removing ecologically inappropriate woody plant material
- DNR created small grants pilot project to cut, move and stage woody biomass material from public and private lands
- Project partner is District Energy St. Paul



Linking Habitat Restoration to Bioenergy

■ Goals:

- Facilitate habitat restoration efforts
- Provide a local source of energy
- Explore feasibility including cost/benefit
- Replicate

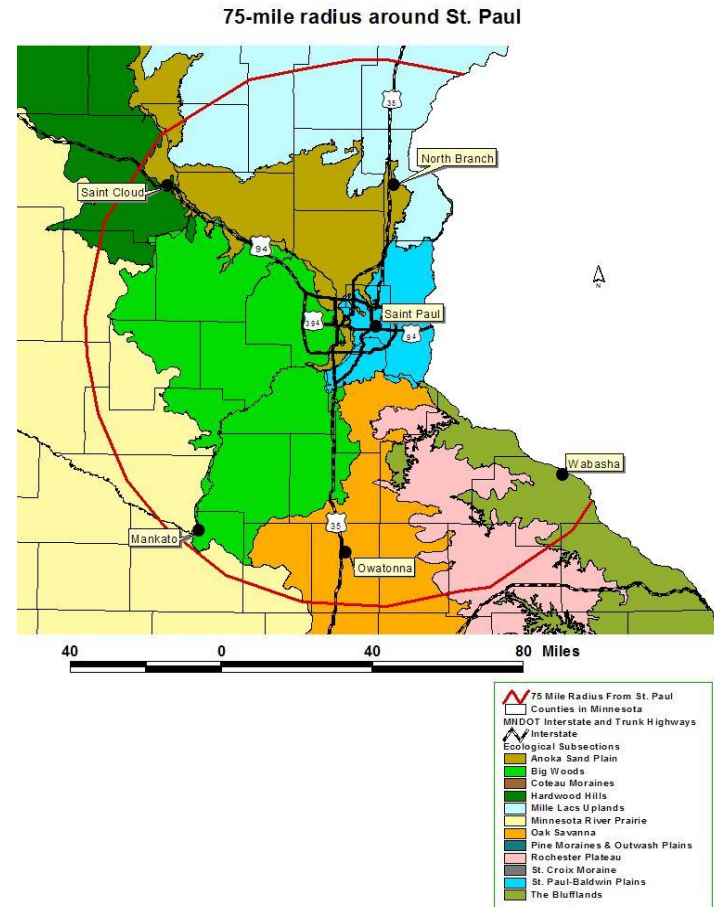
■ Benefits:

- Increase healthy native habitats
- Utilize traditionally discarded woody biomass as bioenergy
- Supplement landowner resources for habitat restoration

Linking Habitat Restoration to Bioenergy

The need:

More than 7,000 acres of restorable habitat in need of tree and shrub removal have been identified on public and private land within 75 miles of St. Paul!





Linking Habitat Restoration to Bioenergy

Pilot Approach ➡ Develop Procedures and Criteria:

- Ecological value of the site – MCBS ranking
- Restricted to 75 mile radius of St. Paul
- Estimated volume at least 20 semi-truckloads
- Suitable roads/trails and staging area
- Current Management Plan (less than 10 years old)
- Capacity to manage project and write Harvest Plan
- Capacity and commitment for post-harvest management to achieve and maintain long-term restoration goals



Linking Habitat Restoration to Bioenergy

■ Pilot Projects Completed/Underway:

- Pilot Knob Hill, **3 acres**, City of Mendota Heights
- Hastings Sand Coulee SNA, 7 acres, MN DNR
- Schuneman Marsh Preserve, 3 acres, **Izaak Walton League**
- Indian Mounds Park, 12 acres, City of St. Paul
- Bridgeview Park Reserve, 15 acres, **Sherburne County**
- Lake Edith (2 phases), **90 acres**, Belwin Conservancy
- Zumbro Falls Woods SNA, 29 acres, **MN DNR**
- Kelleher Park, 23 acres, **City of Burnsville**
- Fort Snelling WPA Camp, 17 acres, MN DNR
- Uncas Dunes SNA-South Unit (2 phases), 47 acres, MN DNR
- Alimagnet Park, 28 acres, City of Burnsville
- DNR St. Paul Hatchery A.M.A., 8 acres, MN DNR

Linking Habitat Restoration to Bioenergy

Pilot Knob Hill - 3 acres of mixed hardwoods restored to
oak savanna/prairie, 16 loads, 320 tons, \$21.50/ton



Linking Habitat Restoration to Bioenergy

Hastings Sand Coulee SNA - 7 acres of pine plantation
and invading red cedar restored to dry barrens prairie,
27 loads, 540 tons, \$16.11/ton



Friends of the Mississippi River

Linking Habitat Restoration to Bioenergy

Schuneman Wildlife Preserve - 3 acres of pine plantation
and invading hardwoods to oak savanna, 16 loads,
320 tons, \$12.33/ton



Linking Habitat Restoration to Bioenergy

Indian Mounds Regional Park, City of St. Paul
12 acres of mostly buckthorn restored to oak savanna
and oak forest, 372 tons, \$72.58/ton



Linking Habitat Restoration to Bioenergy

Bridgeview Park, Sherburne County - 15 acres of mixed
hardwoods, conifers and shrubs to oak woodland, 23
loads, 460 tons, \$66.92/ton



Linking Habitat Restoration to Bioenergy

Lake Edith Prairie and Savanna Phase 1, Belwin Conservancy - 74 acres of mixed hardwoods, conifers and shrubs to prairie and oak savanna, 209 loads, 4,180 tons, \$19.47/ton



Linking Habitat Restoration to Bioenergy

Zumbro Falls Woods SNA – 29 acres conifer plantations, mixed hardwoods and shrubs to oak savanna, 56 loads, 1,120 tons, \$12.70/ton – 120 cords sold



Linking Habitat Restoration to Bioenergy

Kelleher Park, City of Burnsville - 23 acres of mixed
hardwoods, conifers and shrubs to oak savanna, 41
loads, 820 tons, \$57.20/ton



Linking Habitat Restoration to Bioenergy

Fort Snelling WPA Camp, MN DNR - 17 acres of
buckthorn with some mixed hardwoods to prairie and
oak savanna, 19 loads, 380 tons, \$28.37/ton



Linking Habitat Restoration to Bioenergy

Uncas Dunes SNA-South Unit, MN DNR - 47 acres of
mixed hardwoods, conifers and shrubs to oak
savanna 44 loads, 880 tons, \$69/ton = 2 Phases



Linking Habitat Restoration to Bioenergy

Alimagnet Park, City of Burnsville - 28 acres of buckthorn, honeysuckle and some mixed trees to red oak-sugar maple-basswood, 13 loads, 260 tons, \$142.69/ton



City of Burnsville



City of Burnsville

Linking Habitat Restoration to Bioenergy

Lake Edith Savanna Phase 2, Belwin Conservancy -
15 acres of mixed hardwoods and shrubs (primarily
buckthorn and Amur maple) to oak savanna,
17 loads, 340 tons, \$70.58/ton





2010: Linking Habitat Restoration to Bioenergy and Local Economies

- In 2010, an additional \$600,000 provided by the MN ENRTF
- Builds on the success of the pilot project
- Expands market opportunities for the biomass
- Will assess the feasibility of market-driven ecological restoration
- Funding available for 3-years

Linking Habitat Restoration to Bioenergy and Local Economies

Additional Goals:

- Stimulate local woody biomass markets
- Support local businesses and NGO's
- Utilize and employ labor crews
- Provide direct benefits to ecosystems and economies

Conservation Corps Minnesota



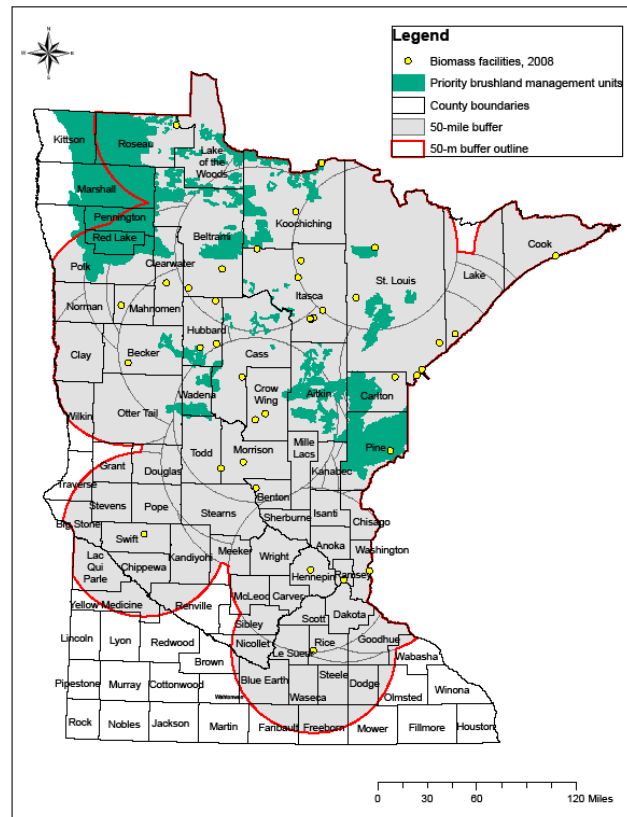


Linking Habitat Restoration to Bioenergy and Local Economies

Small-scale Market Opportunities:

- Bioenergy
- Mulch (landscaping)
- Nursery Industry - soil amendments, mulch
- Animal bedding
- Pellets/Briquettes (home heating)
- Timber (house logs)
- Cedar for stream bank restoration
- Biomass aggregators
- Firewood
- Other???

Linking Habitat Restoration to Bioenergy and Local Economies



2008 Map of
biomass facilities

****Challenge is to
identify local outlets for
biomass material to
reduce transportation
costs and for project
efficiency.**



Linking Habitat Restoration to Bioenergy and Local Economies

Woody Biomass Project Management:

- DNR Operational Order #113 sets forth policy and procedures to prevent or limit the introduction, establishment and spread of IS and implement site-level management to limit the spread and impact of invasive species.
 - Specific prevention measures adapted for woody biomass projects and incorporated into the required **Woody Biomass Harvest Implementation Plan**
 - Provided to all parties actively operating on the project site



Linking Habitat Restoration to Bioenergy and Local Economies

Woody Biomass Project Management :

- Permit to Transport Noxious Weed Infested Material or Equipment – issued by the MDA = buckthorn
- Compliance Agreement - issued by the MDA and/or USDA = movement of EAB and other regulated articles from a quarantined area
- Ecological Restoration and Management Plan
- Biomass Harvesting Guidelines for Forestlands, Brushlands and Open Lands – December 2007



Linking Habitat Restoration to Bioenergy and Local Economies

Key Resources and Opportunities:

- Woody Biomass Utilization Desk Guide – USDA Forest Service
- Minneapolis Biomass Exchange - <http://www.mbioex.com/>
- Clean Water, Land and Legacy Amendment – LSOHC
- Environmental and Natural Resources Trust Fund – LCCMR



Linking Habitat Restoration to Bioenergy and Local Economies

Biomass Crop Assistance Program (BCAP)

(Final Rule, Federal Register October 27, 2010)

<http://www.fsa.usda.gov/bcap>

Subsidy for up to \$45/ dry ton of delivery cost – available for 2 years:

“Material has been collected or harvested directly from the land in compliance with an approved conservation plan, forest stewardship plan, or equivalent plan, and in compliance with that plan, and, that eligible materials that are not crop residues are byproducts of preventative treatments that are removed to reduce hazardous fuels, to reduce or contain disease or insect infestation, or to restore ecosystem health.”



Linking Habitat Restoration to Bioenergy and Local Economies

Long-term Considerations:

- Broaden scope to include forest health issues such as Emerald ash borer, oak wilt
- Replicate as markets develop
- Focus on land-based initiatives (Anoka Sandplain Partnership)
- Develop landowner based woody biomass cooperative

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Leonard's Skipper –
Uncas Dunes SNA

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