



Butte College

Campus-Wide Sustainability Initiatives: Success Through Collaboration, Commitment and Common Vision

Melinda Riley, Sociology Instructor
Co-Chair, Butte College Sustainability Steering Committee
Coordinator, Clear Creek Sustainability Curriculum Project

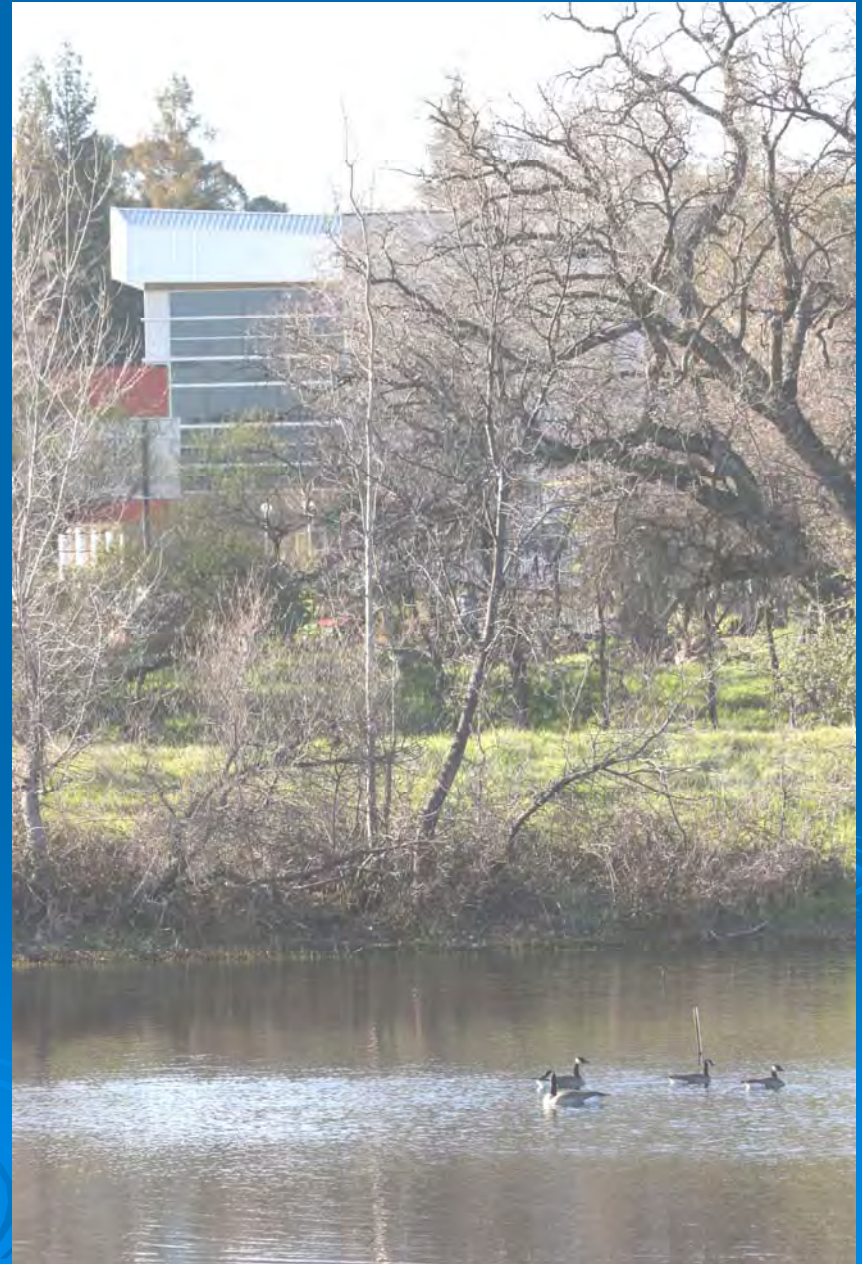
National Community College Sustainability Conference
Lane Community College
Eugene, Oregon
April 16-17, 2008



Committed to Education for a Sustainable Future

Areas of Discussion

- **College History and Geography**
- **Sustainability Team**
- **Facilities**
 - **Land Use**
 - **Water and Waste Systems**
 - **Energy**
 - **Buildings**
 - **Transportation**
- **Curriculum**
 - **Development**
 - **Courses**
 - **Transfer Pathways**
 - **Degree/Certificate Programs**
- **Student Involvement**
- **Collaboration with CSUC**



L e g a c y:

40 Years of Environmental Stewardship

Situated on a 928 acre wildlife refuge nestled within the volcanic butte region of the Sierra Nevada foothills of Northern California, Butte Community College is dedicated to the principles of environmental stewardship, community partnership, and educational excellence.



Vision: Modeling Sustainability



Butte Community College's board of trustees, administration, faculty, staff, and students honor the College's legacy of existing in balance with nature by dedicating its mission in the 21st Century to *Sustainability Education* – partnering with students, community, and the living biosphere to envision and create a healthy and prosperous world for present and future generations

Location and Demographics,



Butte College is located in the Center of Butte County, serving Chico, Paradise and Oroville and surrounding areas.

Butte College serves an annual student population of 12,000 students and employs 1,600 faculty and support staff.

Commitment to Sustainability Education

Memberships



*Association for the Advancement of
Sustainability in Higher Education*

Supporting Institution



*U.S. Partnership to UN Decade of Education for
Sustainable Development*

Signatory Partnerships



Talloires Declaration (ULSF Chartered Sustainability Action Pledge)

C o m m i t m e n t to Sustainability Education

5-Year Strategic Plan (2007-2012)

**Collaborative Process between Faculty,
Staff, Administration, Community**

**Sustainability is now one of our
NEW TOP 5 Strategic Initiatives!**

Next Step:

-  **Institute Sustainability into the Core College Values Document**
-  **Institute Sustainability information into all New Student, Faculty and Staff Orientations.**

Butte College Sustainability Steering Committee: Cross-Campus Collaboration

- **Michael Miller: Director of Facilities, Management and Operations**
- **Dr. Al Konuwa, Dean, Social and Behavioral Sciences and Business: Community Outreach**
- **Kelly Munson, Faculty, Political Science and Associated Students Advisor: Student Involvement**
- **Melinda Riley, Faculty, Sociology: Curriculum**

Butte College Sustainability Steering Committee: Cross-Campus Collaboration


The Key to Our Success?

- **We check our EGOS at the door and roll up our sleeves.**
- **We Hold a Common Vision of the Future and of Our Responsibility to Future Generations.**
- **We Realize that Sustainability is not a *Destination*, but a *Process*.**

FACILITIES:

A Self-Contained College

Because of its size – one of the largest community college campuses in California - and its relatively remote and rural location, Butte College functions much the same as a small city, providing its own water and transportation systems, waste treatment facility, police department, and much of its own energy generating capacity.

The background of the slide features several sets of concentric circles in a lighter blue shade, resembling ripples in water, positioned in the lower right and bottom center areas.

Land Use, Water Conservation, and Wildlife Preservation

- ❑ **Multi-Use Fresh Water Well System**



Riparian restoration using goats

- ❑ **Self-Contained Waste Water Treatment Facility utilizing Effluent conversion into Wildlife Habitat Ponds**



Waste Water Facility and Effluent Ponds

- ❑ ***Living Machine* Waste Treatment System in Design Stage**



Constructing Bird Blinds

- ❑ **Habitat Preservation**

- ❑ **Native Plant Restoration**

- ❑ **Butte College Land and Facilities Management Provides Leadership Models in Environmental Stewardship**



Constructing Effluent Ponds for Wildlife

Natural Laboratory for Sustainability Education



Field Activities, Friends of the Refuge



Biological
Monitoring



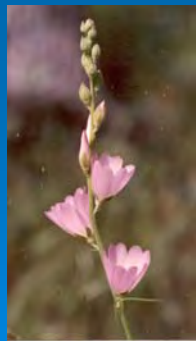
Biology class field studies

Instructional Programs

**Modeling
Sustainable
Practices**



GPS/GIS mapping the refuge



Native plant restoration
Botany



Environmental Horticulture Construction Class Bridge Building



Oak regeneration workshop

Water Conservation



- **Irrigation is largest use --- Use CA Integrated Management Information System to minimize water usage (system senses water requirements and automatically adjusts volume and timing)**
- **Pursuing funding for a living machine to process waste water using living organisms**

Organic Gardens and Vineyard



Recycling



Coach Seth Roberts and Oscar Uribe speak at the dedication of the Athletic track resurfaced with recycled tires

- Compliant with CA Integrated Waste Management Board mandate to recycle over 50% of waste stream since 1992.
- Recycle between 75 and 93% of our waste stream annually
 - 100% of landscape/organic waste
 - 100% tires/batteries/oil/anti-freeze
 - 90-95% cardboard
 - 50% paper
 - 25-30% beverage containers

Energy Independence at Butte College

Photovoltaic Solar Project - Phase I

5,700 Sharp 185 watt photovoltaic panels on 3.5 acres

- **Second largest community college solar array in the nation**
- **Generates 1,659,127 kw/hrs annually**
- **Provides 1/3 college's total energy = 300 single family homes**
- **Total utility cost reduction = \$1.3M**

Annual Environmental Benefits:

- **\$346,593 in avoided utility costs**
- **Eliminates greenhouse gas emissions equal to 90 acres of trees**
 - **18lbs sulphur dioxide**
 - **738 lbs nitrous oxide**
 - **2,309,951 lbs carbon dioxide**

Instructional Benefits:

- **Demonstrates commitment to sustainable energy practices**
- **Provides instructional opportunities in alternative energy generation and distribution**



Energy Independence at Butte College

Photovoltaic Solar Project: Phase II and III

**Greenhouse Gas Audit/Assessment
Completed January 2008**

**Phase II and III Solar Project
(Planning Stage)**

Goal: 2015 100% Sustainable Campus

4 Mega Watt Project includes:

- **Solar photovoltaic panel expansion**
- **Hydrogen generation storage**
- **Co-generation with hydrogen fuel cells**



The Built Environment and Ecological Design at Butte College



Allied Health and Public Services 2003

- **Ecological Design Construction: 5 new buildings (2002-2009) to meet *U.S. Green Building Council* LEED (Leadership in Energy and Environmental Design) standards.**

- **Ecological Design incorporates standard sustainable features that maximize energy efficiency, natural and recycled materials, siting, daylighting, and views.**

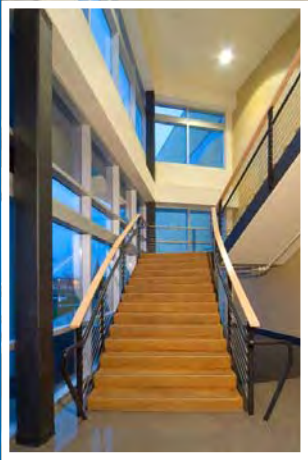


Chico Center 2004



Learning Resource Center 2006

The Built Environment and Ecological Design at Butte College



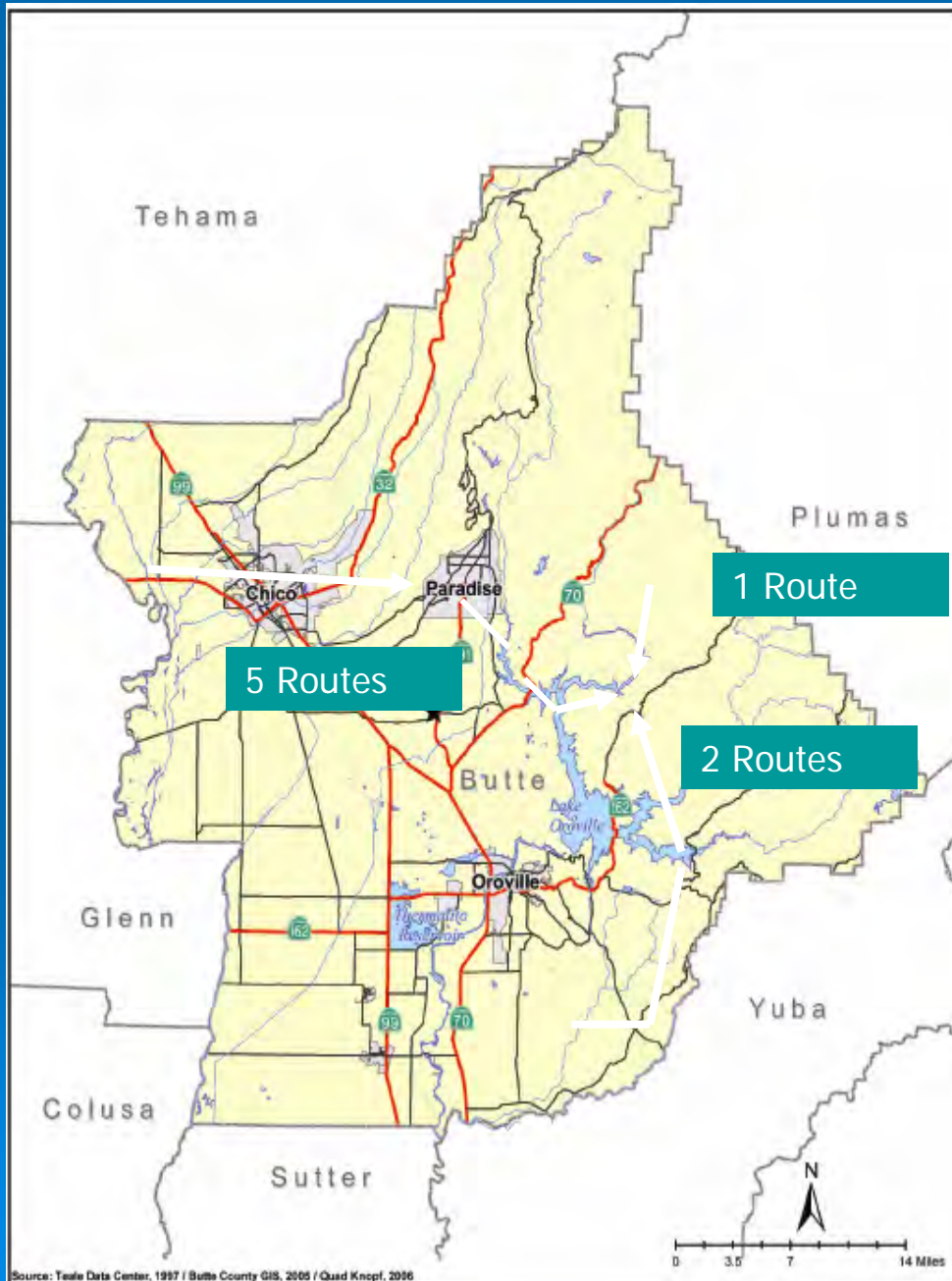
Innovative Technology in Energy Efficiency

- ❑ HVAC and Lighting Occupancy Sensors in classrooms and offices
- ❑ Modulated multi-zone HVAC units
- ❑ Water and Lavatory sensors
- ❑ Vending Misers
- ❑ Lighting replacement



Five Year Results - Usage per Square Foot
Electricity ↓ 18%
Natural gas ↓ 40%

Transportation



- Butte College runs the largest community college transportation system in California.
- Systems features
 - 8 routes
 - 250,000 miles per year
 - serves 1,000 students per day
 - Cost \$970,000 per year
 - Paid for by student fees
- Partner with Glenn-Ride to transport students from Glenn County to a transfer point in Chico
- Partner with Butte County Transit to provide reduced rate fares for students
- Member of AlteNetRide car pool sharing program

Transportation



One of three natural gas buses procured through State grant program

Have recently replaced all 12 buses with more fuel efficient, lower emission models

Examining feasibility of using BioDiesel

Planned Instalation of Electric/Hybrid Recharging Ports:

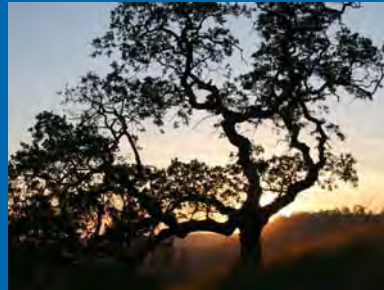
Free parking incentives



Butte College CURRICULUM

The Clear Creek Project

A Butte College Sustainability Curriculum Development Initiative



Modeled after the *Piedmont Project* at Emory University

www.scienceandsociety.emory.edu/piedmont/

*Workshops

*Green Bag Lunch Series

*Off-Campus Social Gatherings



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Faculty Collaboration: the Heart of the Project

Each summer the *Clear Creek Project* seeks to draw together cohorts of roughly 10 faculty from diverse disciplines to learn about sustainability problems and solutions. Development of new courses or course materials begins with a full day introductory workshop the first week of June where faculty facilitators lead discussions about sustainability and environmental issues and the larger political, economic, social, philosophical, and ethical dimensions of these issues.

Mid-day walks through the Butte College organic gardens and nature preserve provide an opportunity for experiential learning. The lectures, discussions, outdoor time, and workshop materials all highlight connections among environmental dimensions of the Butte College campus, and the broader regional, national, and international issues of sustainability. There is a follow-up meeting in August just prior to the start of the Fall semester in which faculty reconvene to share their learning experiences, pedagogical innovations, and course development and content modifications.

Several faculty gatherings and green bag lunch series are held throughout the academic year to build interdisciplinary collegiality and networks of resource sharing.



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The Clear Creek Project **June Workshop Sample Schedule**

10:00–10:30	Overview of the Sustainability Paradigm
10:30–11:00	David Orr “The Fifth Revolution” [Bioneers talk]
11:00–11:30	Samples of Green Curricula (AASHE website)
11:30–12:00	Groupwork
12:00–1:00	LUNCH and Sustainability Book Browse
1:00–1:30	Janine Benyus “Biomimicry” [Bioneers talk]
1:30–2:00	‘Biophilia’ and ‘Place’ Based Learning
2:00–3:00	Nature Walk and Popsicles with Deb Conway
3:00–3:20	Evaluation Tools: Sustainability SLOs
3:20–3:40	Service Learning Projects that Enhance Sustainability Ed.
3:40–4:10	Groupwork
4:15–4:45	Amory Lovins “Winning the Oil Endgame” [Bioneers talk]
4:45–5:00	Group Reflections



Sustainability Themed Courses

Existing Courses

- **Environmental Studies: *Introduction to Environmental Science***
- **Chemistry: *Chemistry and Society***
- **Psychology 11: *Peace Psychology***
- **Sociology 4: *Modern Social Problems***
- **Agriculture: *Global Food and Hunger Issues***

New Courses Fall 2007

- **Sociology 5, *Our Sustainable Future***
- **IDST 94, *Service Learning: Sustainability Projects***

Sustainability Themed Courses

New Courses Fall 2008

- **Biology 7: *Sustaining Life on Earth***
- **Economics 35: *Environmental Economics***
- **Philosophy 10: *Environmental Ethics***
- **Political Science 92: *Exploring Leadership***
- **IDST 96: *Civic Engagement Practicum***

Proposed New Courses Spring 2009

- **History: *Environmental History of the U.S.***
- **Anthropology: *Sustainability and Culture***
- **Geography: *Sustainability Mapping and Auditing with GIS***
- **Sociology: *Population, Poverty and Underdevelopment***
- **Sociology: *Global Problems and the Culture of Capitalism***

Sustainability Education Transfer Pathways

- **General Education and Transfer: Course Articulation w/**
 - **Chico State Business School, Managing for Sustainability Minor**
 - **Chico State Environmental Science Program**
 - **Chico State School of Sustainability: Interdisciplinary Degrees**
 - **University of California System Sustainability Programs**



Butte College

Spring 2009 (projected date)

Associate Degree in *Sustainability Studies*

Benefit to Students:

- Thorough Preparation for Transfer to Sustainability Degree Granting 4 year Institution
- All Courses Fulfill General Education Requirements
- All courses Transferable to CSUC/UC (pending on some)
- Low-Cost Alternative for Fulfilling Lower-Division G.E. Requirements



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Spring 2009 (projected date) **Career and Vocational Education** ***Green Building Certificate***

Emphases on:

- Green Building Design, Engineering and Architecture
- Alternative Energy Systems
- Energy Conservation
- Passive and Active Solar Design
- Alternative Construction Methods and Materials
- Green Interior Design Techniques
- Green Building Guidelines and Codes (Residential and Commercial)



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Student Events and Involvement

■ **Grand Prize Winner 2008**

National Wildlife Federation *Chill Out Contest*



■ ***Student Alliance for Sustainability***

■ **Sustainability Resource Center**

- **Student Centered: Books, DVDs, Magazines, Collegiality**

■ **Events**

- **Energy Awareness Fair**
- **Sustainable Living Day**
- **Earth Day Festival**
- **BioTour**
- **This Way to Sustainability Conference**
 - (with Chico State)
- **Focus the Nation www.focusthenation.org**





COMMUNITY OUTREACH

Butte College **CSU Chico**



Butte College/CSU, Chico American Democracy Project Partnership



**One of Three 2 year College – 4 year University
Partnerships in the Country**

**Only Participating Members with
Sustainability Theme**



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Butte College CSU Chico Partnership



January 31, 2008

A national teach-in engaging millions of students and citizens with political leaders and decision makers about Global Warming Solutions.

Colleges and Universities
K-12
Faith Organizations
Business Partners
Civic Organizations



www.focusthenation.org



Butte College **CSU Chico** Partnership



Co-Sponsor and Co-Host

The Way to Sustainability Conferences

**Focus on the Built Environment
June 2-4**

Butte College Main Campus

**Focus on Curriculum, Facilities, Food Services,
Purchasing, Green Building, Community Education
November
Chico State University**



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***Committed to Education for a Sustainable Future
2008***