



## Center for Natural Lands Management

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Ecosystem Services – Defined and In Practice

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## About CNLM

- Established in 1990 as a 501(c)(3) not for profit corporation.
- Goal:
  - to create, design and implement fundamental, effective, and financially feasible methods of managing and preserving functioning ecosystems in perpetuity.
- Protected Lands:
  - Stewardship responsibilities through fee title, conservation easements, and management contracts;
  - 72 Preserves – ranging in size from 1 to 4,000 acres;
  - More than 33,000 acres under management;
  - Ecosystems: desert and coastal sand dunes, desert palm oases, coastal sage scrub, vernal pools, marshland, grassland, riparian forest habitats, south sound prairie.
- Staff of 40 located throughout California and Puget Sound, Washington.



## CNLM's Mission

Our mission is to:

- (a) Conserve native species, their habitat and functioning ecosystems in perpetuity;
- (b) Own and/or manage lands in an ecologically beneficial manner consistent with local, state and federal environmental laws and with science-based stewardship;
- (c) Promote the conservation values of such lands through education;
- (d) Promote and facilitate uses of such lands by the public that preserve the conservation values; and
- (e) Cooperate with public and private entities in their efforts to protect native species and their habitats for the public benefit.



## Examples of PES

### **Emissions Trading Schemes:**

- US SO<sub>x</sub> "Acid Rain" Trading: began in 1990
- US NO<sub>x</sub> Trading Programs: began in 1995;
- California "RECLAIM" SO<sub>2</sub> & NO<sub>x</sub>: began 1994
- European Union's Emissions Trading Scheme: began in 2005
- Regional Greenhouse Gas Initiative: 10 NE states, began in 2009.

### **Biodiversity Credit Trading Schemes:**

Australia has a number of Market Based Incentive programs for biodiversity-impact compensation. Offset programs include New South Wales's BioBanking program, Victoria's BushBroker, and Queensland's numerous offset policies. And auction programs include the BushTender and EcoTender developed by Victoria's Department of Sustainability and Environment.



## Examples of PES

### **Recovery Credit System - Golden Cheeked Warbler, Fort Hood, Texas.**

Pilot Project enrolling neighboring private land owners to accrue recovery credits to be accrued by accomplishing recovery tasks for the species on non-federal lands. Credits are then available to offset adverse impacts elsewhere to the same species conducted in such a manner as to yield a net benefit to recovery for the species.

An important but controversial feature of the RCS at Fort Hood is that landowners may participate while maintaining confidentiality.

From: "The Power of Incentives: Can We Get Better ESA Performance From Private Lands?" R. Neal Wilkins, Texas A&M Institute of Renewable Natural Resources

### **Water Quality Credit Trading: Ohio River Basin Trading Project.**

The Ohio River Basin Trading Project is entirely voluntary. The incentive to participate is based on the likelihood that credit sellers will receive attractive financial benefits by selling credits, and that permitted dischargers will have the flexibility to cost-effectively meet their environmental permit requirements.

Selling water quality credits provides a funding source that farmers use to offset the cost of new conservation practices aimed at improving water quality.

From: [http://my.epri.com/portal/server.pt?open=512&objID=1238&PageID=235464&mode=2&in\\_li\\_userid=2&cached=true](http://my.epri.com/portal/server.pt?open=512&objID=1238&PageID=235464&mode=2&in_li_userid=2&cached=true)



## Examples of PES

### **Methane Capture and Digestion for Electricity: Strauss Family Creamery, Marin, CA.**

Methane accounts for about 3% of greenhouse gasses, but is about 20x more potent than Carbon dioxide.

A dairy cow can generate 120 lbs. of waste each day, totaling about 40,000 lbs. per year.

Strauss has developed and implemented a process to capture methane emitted from cow waste and generate electricity used to power their complete dairy operations and sell energy back to the grid. This system generates over 300,000 kilowatt-hours per year, equivalent to over \$40,000 a year.

From: <http://www.strausfamilycreamery.com>

## Web Resources

Ecosystem Marketplace: <http://ecosystemmarketplace.com/>

California Climate Action Registry: <http://www.climate registry.org/>

Natural Capital Project: <http://www.naturalcapitalproject.org/>



## Center for Natural Lands Management

Rise Early, Stay Late,  
Take Care of the Land

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