



CLIMATE *Friendly* PARKS



Redwood National and State Parks Action Plan

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REDWOOD NATIONAL AND STATE PARKS BECOME CLIMATE FRIENDLY AND COOL PARKS

As a participant in the National Park Service Climate Friendly Parks and California State Parks Cool Parks programs, Redwood National and State Parks belong to a network of parks in California and nationwide that are putting climate friendly behavior at the forefront of sustainability planning. By conducting an emission inventory, setting emission reduction goals, developing this Action Plan, and committing to educate park staff, visitors, and community members about climate change, Redwood National and State Parks provide a model for climate friendly behavior within California state and national parks.

This Action Plan identifies steps that Redwood National and State Parks can undertake to reduce greenhouse gas emissions (GHG) and mitigate their impact on climate change. The plan presents the parks' emission reduction goals, and associated reduction actions to achieve the parks' goals. Strategies and action plan items were developed by working groups within the state and national parks and at the NPS Klamath Climate Friendly Parks Workshop.¹ While the plan provides a framework needed to meet the parks' emission reduction goals, it is not intended to provide detailed instructions on how to implement each of the proposed measures. The parks' Environmental Management System will describe priorities and details to implement these actions. The parks' Environmental Management System is divided into the following categories: facility design, energy use, purchasing, fleet management, solid waste, hazardous waste, vegetation management, fire management, watershed restoration, visitor use and inventory and monitoring. The planned actions described in this Action Plan will be incorporated into one or more of the Environmental Management System's categories and subsequently carried forward through the goals, objectives, targets and implementation activities. It is within the annual Environmental Management System update process that the generalized planned actions described in this Action Plan will be made specific and actionable.

Redwood National and State Parks aim to:

- Reduce 2007 energy GHG emissions from park operations by 20 percent by 2015.
- Reduce 2007 transportation GHG emissions from park operations by 10 percent by 2015.
- Reduce 2007 waste GHG emissions from park operations by 10 percent by 2015.
- Reduce total 2007 park GHG emissions, including visitors, by 10 percent by 2016.

To meet these goals, the park will implement strategies proposed in this plan that relate to the park's current and future emission inventories. Specifically, the plan recommends three strategies:

Strategy 1: Identify and implement mitigation actions that the parks can independently take to reduce GHG emissions resulting from activities within and by the parks.

Strategy 2: Increase climate change education and outreach efforts.

Strategy 3: Monitor progress with respect to reducing emissions and identify areas for improvement.

THE CHALLENGE OF CLIMATE CHANGE

Climate change presents significant risks and challenges to California State Parks, the National Park Service and specifically to Redwood National and State Parks. Scientists cannot predict with certainty the general severity of climate change nor its impacts. Average global temperatures on the Earth's surface have increased about 1.1°F since the late 19th century, and the 10 warmest years of the 20th century all occurred in the last 15 years. The single leading cause of this warming is the buildup

¹ Original notes from these workshops, including detailed action items not presented in the final plan have been archived by Redwood National and State Parks and are available upon request.

of GHGs in the atmosphere—primarily carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) —which trap heat that otherwise would be released into space.

The continued addition of CO₂ and other GHGs to the atmosphere will raise the Earth's average temperature more rapidly in the next century; a global average warming of 4-7°F by the year 2100 is considered likely.² Rising global temperatures will further raise sea levels and affect all aspects of the water cycle, including snow cover, mountain glaciers, spring runoff, water temperature, and marine and aquatic life. Climate change is also expected to affect human health, crop production, animal and plant habitats, and many other features of our natural and managed environments.

At Redwood National and State Parks, increasing temperatures, and changing precipitation patterns may alter park ecosystems, change vegetation communities, alter habitats available for species, and change the experience of park visitors. These changes may make it more likely that new plant and animal diseases become problematic, such as Sudden Oak Death. Invasive, exotic plants and animals become more prevalent if climactic conditions favor non native species over native species. Fire regimes may become more or less frequent and intense, which may cause vegetation communities to change in composition and extent. Severe storm intensity and frequency may cause increased coastal erosion, more frequent “blow down” events in park forests and increased flooding. Rising ocean levels caused by polar ice melting may inundate coastal habitats. In addition, changing atmospheric chemistry may also alter marine ecosystems. Higher levels of carbon dioxide in the air is being absorbed by the ocean locally and making the water more acidic. If this trend continues, then marine animals that depend on suspended calcium to make their shells or bones may not be able to create these structures properly, or at all, and thus greatly lessen their ability to survive.

² IPCC 2007. Climate Change 2007: The Physical Science Basis. Intergovernmental Panel on Climate Change, Geneva Switzerland. Available online at < <http://ipcc-wg1.ucar.edu/wg1/wg1-report.html>>



GREENHOUSE GAS EMISSION INVENTORY AT REDWOOD NATIONAL AND STATE PARKS

Naturally occurring GHGs include CO₂, CH₄, N₂O, and water vapor. Human activities (e.g., fuel combustion and waste generation) lead to increased concentrations of these gases (except water vapor) in the atmosphere.

Greenhouse Gas Emissions

GHG emissions result from the combustion of fossil fuels for transportation and energy (e.g., cars and trucks, electricity generation), the decomposition of waste and other organic matter, the burning of vegetation during prescribed fires and the volatilization or release of gases from various other sources (e.g., fertilizers and refrigerants). The vast majority of GHG emissions in the parks are the result of vehicles burning fossil fuels. Redwood National and State Parks are over 50 miles long and are accessed by two interstate highways and a county road. Visitors and park staff must travel long distances to move from one section of the parks to another. Conversely, energy consumption for heating or cooling park buildings is quite low because of the very moderate year round coastal climate. Temperatures rarely rise above 70 degrees Fahrenheit in the summer and rarely dip below 40 degrees in the winter.

In 2007, GHG emissions within Redwood National and State Parks totaled 8,352 metric tons of carbon dioxide equivalent (MTCO₂E). This includes emissions from park and concessioner operations and visitor activities, including vehicle use within the parks. For perspective, a typical single family home in the U.S. produces approximately 11 MTCO₂ per year.³ Thus, the combined emissions from park and visitor activities within the park are roughly equivalent to the emissions from the electricity use of 759 households each year (see Figure 1 and Table 1)..

The largest emission sector for Redwood National and State Parks is mobile combustion stemming from vehicle use by park visitors and park staff, totaling approximately 6,893 MTCO₂E. The majority of those mobile combustion emissions overall are due to visitors traversing the park in their private vehicles. The parks do not have a public transportation system. Such a system is very difficult to operate in the parks because, as mentioned previously, the major access routes are federal highways or county roads and not park owned roads. Park vehicles also make up the majority of park operations emissions (see Figure 2 and Table 2). Only very small emission amounts are generated by all the other sectors in the parks. All forestry emissions are the result of smoke generated during annual prescribed burning of park grasslands, woodlands and forests.

³ U.S. EPA, Greenhouse Gases Equivalencies Calculators – Calculations and References, Retrieved , Website: <http://www.epa.gov/RDEE/energy-resources/calculator.html>



FIGURE 1

Redwood National and State Parks 2007 Total Greenhouse Gas Emissions by Sector

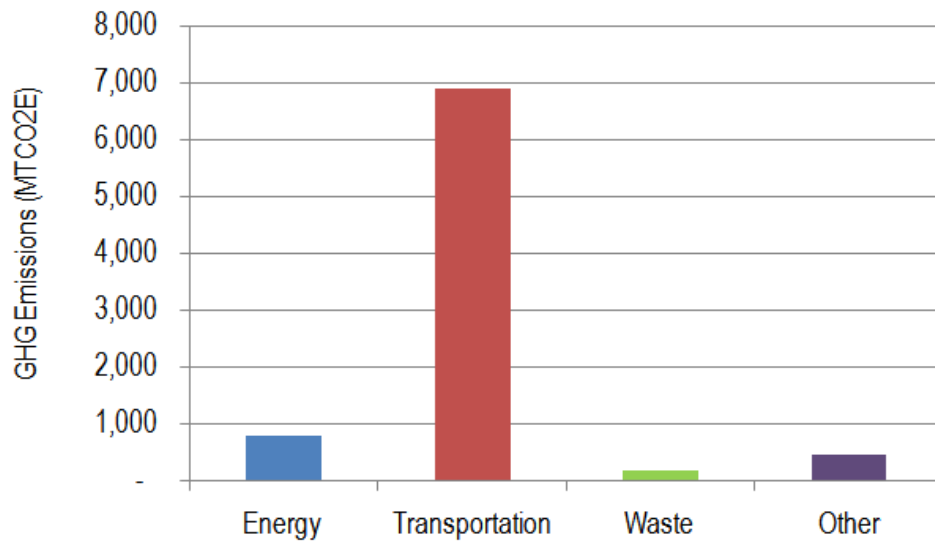


TABLE 1

Redwood National and State Parks 2007 Total Greenhouse Gas Emissions by Sector and Source

| | MTCO2E |
|------------------------------------|--------------|
| Energy | 799 |
| Stationary Combustion | 201 |
| Purchased Electricity | 598 |
| Transportation | 6,893 |
| Mobile Combustion | 6,893 |
| Waste | 196 |
| Landfilled Waste | 196 |
| Other | 464 |
| Refrigeration and Air Conditioning | 153 |
| Forestry | 311 |
| Total | 8,352 |

Note - Totals may not sum due to rounding

Not applicable data sources represented by "-"

FIGURE 2

Redwood National and State Parks 2007 Park Operations Emissions by Sector

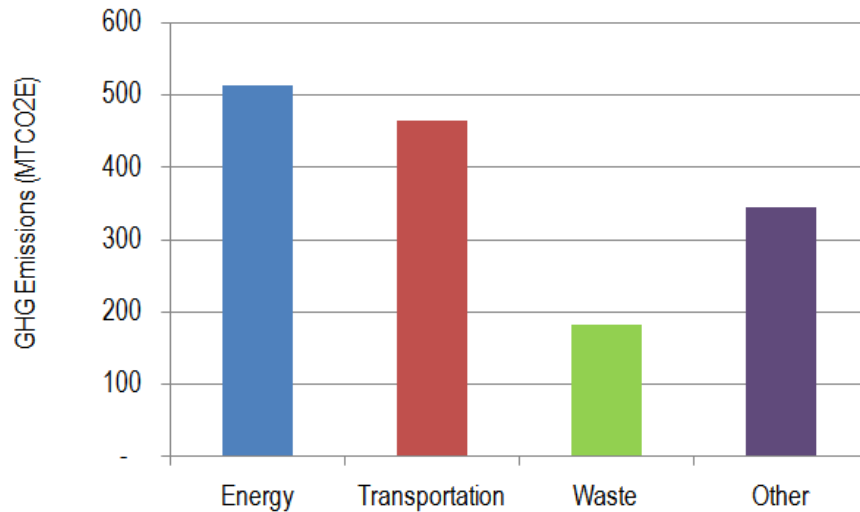


TABLE 2

Redwood National and State Parks 2007 Park Operations Emissions by Sector

| | MTCO2E |
|------------------------------------|------------|
| Energy | 680 |
| Stationary Combustion | 111 |
| Purchased Electricity | 569 |
| Transportation | 550 |
| Mobile Combustion | 550 |
| Waste | 192 |
| Landfilled Waste | 192 |
| Other | 350 |
| Refrigeration and Air Conditioning | 39 |
| Forestry | 311 |
| Total | 772 |

Note - Totals may not sum due to rounding

Not applicable data sources represented by "-"

Redwood National and State Parks Respond to Climate Change

The following actions were developed and during in-house staff meetings in order to meet the Parks climate change mitigation goals.

STRATEGY 1: REDUCE GHG EMISSIONS RESULTING FROM ACTIVITIES WITHIN AND BY THE PARKS

Redwood National and State Parks have developed a set of actions that the parks are committed to taking in order to reduce emissions from activities within and by Redwood National and State Parks. These strategies have been prioritized based on a qualitative assessment of a set of criteria including: emission reduction potential, cost-effectiveness, feasibility, co-benefits, regional impact, and ability to rapidly implement. Actions that Redwood National and State Parks will take have been presented below in order from highest to lowest priority within each sub-category.

Energy Use Management

Emission Reduction Goal: Reduce park operations' energy use emissions to 20 percent below 2007 levels by 2015.

Improving energy efficiency and implementing alternative energy sources reduces park-based fuel use, lowers GHG emissions, decreases electricity consumption, and offers monetary benefits for the park. Emissions inventory results indicate that approximately 40 percent of the park's GHG emissions from park operations are from energy consumption. Consequently, Redwood National and State Parks identified actions they will take to reduce energy-related emissions. Presented below are the actions that are currently under way and which comprise the park's progress to date, as well as those actions the park will pursue.

Progress to Date

Behavioral Changes

- Encourage energy conservation in all park activities.
- Energy-savings settings have been implemented for computers and monitors to reduce the amount of vampire energy (also known as "ghost" energy).
- Revitalized operations and maintenance schedules for ensuring energy efficiency with the Facility Maintenance Software System.
- Adjusted thermostats to control the amount energy used during the summer and winter months.
- Changed all computer power management settings to the least amount of energy used.

Lighting

- Installed energy efficient lighting fixtures in all park buildings.
- Installed dimmable ballasts and lighting controls in some of the buildings around the parks.
- Installed energy efficient outdoor lighting on all of the parks' outdoor lighting systems.
- Considered the building siting and the use of daylighting on the North Operations Center maintenance facility.



Heating, Ventilation, and Air Conditioning (HVAC)

- Developed a HVAC maintenance schedule with the Facilities Maintenance Software System.
- Upgraded the air distribution systems in some older buildings around the parks.
- Implemented the use of a Building Automation System in the new construction of the North Operations Center maintenance facility.

Energy Efficient Electronics and Devices

- Purchased energy efficient electronics that meet Department of the Interior policy.
- All computers are defaulted to print double-sided to reduce the amount of paper used by the parks.

Alternative Energy

- Installed photovoltaic panels on numerous facilities around the parks.

Other Energy Management Actions

- Installed metering at the North Operations Center maintenance facility.
- Completed an energy audit on some of the parks' buildings

Energy Use Management – Planned Actions

1 Promote energy efficiency and energy conservation in the parks through behavioral change

- Encourage energy conservation in all parks activities.
 - Reinforce with seasonal training, Green Stew brochure, and bulletin board posters.
- Develop a mandatory energy-saving training program.
 - Reinforce with seasonal training, Green Stew brochure, and bulletin board posters.
- Adjust thermostats.
 - Reinforce with seasonal training, Green Stew brochure, and bulletin board posters.
- Ensure all computers' power management settings follow current ENERGY STAR recommendations.
 - Reinforce with seasonal training, Green Stew brochure, and bulletin board posters.

2 Upgrade lighting options

- Install dimmable ballasts and pair lighting with photosensors to reduce electricity use.



- Continue installing dimmable ballasts in existing lighting systems.
- Install lighting controls.
 - Continue installing lighting controls in existing lighting systems.
- Use daylighting.
 - Retrofit additional existing buildings where feasible.

3 Heating, Ventilation, and Air Conditioning (HVAC)

- Upgrade air distribution systems.
 - Continue with retrofitting older buildings.
- Additional action.
 - Research reusable HVAC filters.

4 Switch to more efficient electronics and devices

- Install Smart Strip power strips.
 - Identify ghost load in all office buildings, research cost of smart power strips and install them where necessary.
- Install energy meters to measure energy use and monitor big consumers.
 - The new photovoltaic power system at Headquarters is planned to have a meter showing energy use at the Crescent City Visitor Center.
- Replace parks' existing boilers or furnaces with energy-efficient models.
 - Review energy efficiency of furnaces in all parks' buildings and housing units.

5 Improve building structures and envelopes

- Replace old windows with new windows.
 - Identify old windows and develop a plan for replacing those windows with a more energy efficient model.

6 Utilize alternative energy sources

- Install photovoltaic panels on parks buildings, parking lots, open areas, etc.
 - Retrofit additional buildings where feasible.
- Purchase electricity from a renewable energy provider.
 - Switch to renewable electricity programs with Pacific Power and Pacific Gas and Electric.

7 Measure energy use throughout the parks

- Incorporate energy efficiency criteria into new contracts for park and concessioner construction.
 - Continue to incorporate energy efficiency criteria in contracts.
- Conduct an energy audit for all park buildings. Partner with local utilities to conduct the audit.
 - Continue to partner with Schatz Energy Research Center at Humboldt State University.
 - Apply for funding to audit additional buildings owned by the Park.
- Install building-level utility meters in existing buildings and in new major construction and renovation projects to track and continuously optimize performance.
 - Investigate potential to monitor energy use in parks buildings.

Transportation Management

Emission Reduction Goal: Reduce park operations transportation emissions to 10 percent below 2007 levels by 2015.

Reducing vehicle miles traveled, improving vehicle efficiency, and using alternative fuels can significantly reduce emissions at Redwood National and State Parks. As the inventory results indicate, GHG emissions from transportation comprise 31 percent of park operations emissions and 83 percent of the park's overall emissions (including visitors, and concessioners).

Accordingly, in addition to the park operations emissions reduction goal, Redwood National and State Parks set a goal to reduce overall transportation emissions by 10 percent below 2007 levels by 2015. Presented below are the actions that are currently under way and which comprise the park's progress to date, as well as those actions that the park will pursue.

Progress to Date

Behavioral Changes

- Carpool parking is provided for employees at the North Operations Center
- Bike racks are provided at Headquarters and at North Operations Center for employees who choose to bike to work.
- Implemented videoconferencing for meetings to reduce the amount of travel needed to and from conferences, meetings, and workgroups.

Visitor Vehicle Travel

- Encourage visitors to walk front country trails to reduce the amount of fuel used by their vehicles.

Vehicle and Equipment Fuel Consumption

- Redwood National Park has analyzed the fleet fuel consumption to track trends in order to reduce the amount of fuel used by the Park.



Transportation Infrastructure

- Improved the parking lot to incorporate native plants to reduce the amount of fuel used as a result of mowing non-native species at the North Operations Center.
- Parks converted from diesel to a 20% biodiesel mix for use in all park vehicles and equipment.

Transportation Management – Planned Actions

1 Transportation-related behavioral changes

- Discourage visitor vehicle idling.
 - Educate visitors on the negative effects of idling.
- Encourage staff carpooling.
 - Develop plan to encourage car pooling.
- Reduce staff idling.
 - Educate staff on the fuel consumption of idling.
 - Place “no idling” stickers on rear windshields, except for emergency response vehicles.
- Encourage staff to bike to work.
 - Encourage staff to bike to work instead of driving their car.
- Encourage staff to carpool or use alternative modes of travel in the parks.
 - Create schedule to allow interpretation staff to carpool when roving (non scheduled engagement with parks visitors).

2 Reduce NPS vehicle and equipment fuel consumption

- Exceed federal fleet performance requirements set by Energy Policy Act (EPAct), Executive Order 13423, and the Energy Independence and Security Act (EISA).
 - Right size National Park Service fleet (lower vehicles/staff ration) through creation of vehicle pools. Exchange vehicles for hybrids vehicles when exchange with GSA.
 - Create a park fleet manager.
- Promote efficient driving.
 - Encourage staff to drive more slowly.
- Identify areas to reduce or eliminate mowing.

- Redesign landscape at Redwood National and State Parks Headquarters to low water use landscape. Use controlled fire for prairie instead of mowing.
- Analyze fleet fuel-consumption patterns for efficiency improvements.
 - Update and analyze.
- Replace 2-stroke engines.
 - Continue with converting tools to 4-stroke engines.
- Additional action.
 - Increase use of vegetable based oils.

3 Replace NPS vehicles and equipment

- Increase fleet fuel efficiency through replacement.
 - Assign duties under the fleet manager position.
- Right size the vehicle fleet by the number and type.
 - Assign duties under the fleet manager position.
- Develop a vehicle replacement plan.
 - Continue implementing the vehicle replacement plan.
- Use alternative fuel vehicles or hybrids.
 - Assign duties to one person and evaluate alternative fuel vehicles source from GSA.
- Incorporate alternative fuel guidelines into fleet specifications.
 - Assign duties under the fleet manager position.
- Replace 4-wheel drive vehicles with 2-wheel drive vehicles where appropriate.
 - Assign duties under the fleet manager position.
- Additional actions.
 - Mark electric vehicles and hybrids with arrowhead or bear logo as well as Climate Friendly and/or Cool Parks logo with short educational message to identify for the public.

4 Update vehicle maintenance procedures

- Develop and maintain a maintenance schedule.
 - Assign duties under the fleet manager position.
- Use bio-based lubricants and greases.



- Confirm availability and use of bio-based lubricants and greases, duties under fleet manager position.
- Operate all fleet vehicles using re-refined oil.
 - Investigate availability of re-refined oil.

5 Improve transportation infrastructure

- Use reclaimed materials for new roads and paving.
 - Reuse reclaimed materials when practical with new construction.

Waste Management

Emission Reduction Goal: Reduce park operations' waste emissions to 10 percent below 2007 levels by 2015 through waste diversion and reduction.

The connection between waste and GHG emissions may not be obvious. However, waste management—in the form of source and solid waste reduction—can dramatically reduce GHG emissions. Landfills are the largest human-generated source of CH₄ emissions in the United States. Reducing the amount of waste sent to landfills reduces CH₄ emissions caused by decomposition as well as the GHGs emitted from the transportation of waste. The less the park and its visitors consume in terms of products and packaging, the less energy is used and fewer GHGs are emitted.

Redwood National and State Parks park operation activities emitted 53 MTCO₂E from waste management in 2007. Diverting or reducing the parks' waste stream through increased recycling efforts and waste management will reduce the amount of waste sent to landfills and resulting emissions. Presented below are the actions that are currently under way and which comprise the park's progress to date as well as those actions that the park will pursue.

Progress to Date

Behavioral Changes

- Trained staff on green procurement practices in 2003.

Waste Prevention

- Started a waste reduction and recycling outreach program aimed at park visitors.
- Developed a schedule for replacing existing materials.
- Purchased stainless steel bottles to replace plastic bottle use by staff.
- Incorporated waste reduction into green office practices.
- Implemented a Pack-In Pack-Out program.

Waste Diversion (Recycling and Composting)

- Composting yard waste at a composting facility in Crescent City, CA.



- Recycled or donated old computers and electronics.
- Practice environmentally responsible deconstruction.
- Green keys purchased for propane cylinders.
- All florescent bulbs are taken to local recycling center.
- Purchased asphalt grinder for park projects.
- All recycling container are placed next to each other for ease of use for the visitors.
- All green waste is transported to composting facility in Crescent City, CA.

Green Procurement

- Increased the recycling content of purchased materials.
- Encouraged contractors to practice green procurement practices.
- Use post-consumer recycled paper in all park publications.
- Established purchasing requirements for computers, and other electronic devices needed for the Park.
- Incorporated low-VOC paint and recycled carpets into new maintenance facility.
- Inventoried and substituted all cleaning supplies with non-toxic products.

Reduce Wastewater

- Monitored, managed, and reduced point source wastewater.
- Reduced storm and groundwater runoff.

Other Waste Management Actions

- Managed solid waste and recycling by developing an Integrated Solid Waste Alternatives Plan (ISWAP).
- Implemented and enforced a construction waste management plan and job site recycling policy.

Waste Management – Planned Actions

1 Decrease waste through behavior change

- Train park staff and contractors on waste reduction responsibilities.
 - Schedule mandatory green procurement training.
- Train staff on green procurement practices.



- Schedule mandatory training on reduce, reuse, and recycle.

2 Establish new plans and policies that promote waste reduction.

- Choose hand dryers over paper towels in NPS restrooms.
 - Install hand dryers in restrooms park wide.
- Purchase products that minimize packaging.
 - Incorporate into updated green purchasing training.
- Reduce waste generated at meetings and employee functions.
 - Purchase dishware for all meeting areas and develop Standard Operating Procedure (SOP) for holding green meetings.

3 Implement recycling and composting practices

- Continually increase the amount of waste material at the park that can be recycled.
 - Continue using the recycle crew.
- Partner with vendors to reuse and recycle park waste.
 - All contractors will have reuse recycle statement in contracts.
- Institute alkaline, lithium battery recycling locations in every office building.
 - Purchase rechargeable batteries and continue with the current battery-recycling program.
- Measure the baseline solid waste generation at the parks.
 - Currently working on the baseline.

4 Reduce and reuse wastewater

- Install low-flow faucets.
 - Install auto flow faucets in restrooms as funding becomes available. .
- Replace toilets with low-flow models.
 - Install dual flush toilets park wide.
- Conserve water used in grounds maintenance.
 - Redo sprinkler system for landscape at headquarters of in Crescent City, CA.

5 Other

- Track and report landfill data to monitor reductions and success in diverting waste from the landfill.
 - Develop use tracking of landfill data.



STRATEGY 2: INCREASE CLIMATE CHANGE EDUCATION AND OUTREACH

Climate change is a complex and easily misunderstood issue. Redwood National and State Parks can play an integral role in communicating about climate change to a vast audience. A better understanding of the challenges and benefits of reducing GHG emissions can motivate staff, visitors, and community members to incorporate climate friendly actions into their own lives. Redwood National and State Parks recognize that the greatest potential impact the parks can have on mitigating climate change is through public education. Thus, the parks see public education as an end goal of any climate initiative. From increasing the efficiency of public transportation to developing a green purchasing program, the actions Redwood National and State Parks take to address climate change serve as opportunities for increasing the public's awareness of climate change. Presented the actions that are currently under way and which comprise the parks' progress to date, and those actions that the park will pursue.

Progress to Date

Climate Friendly and Cool Parks Team

- Hosted a traveling exhibit that focuses on Climate Change at the Del Norte County Fair in August of 2008.

Other Education and Outreach Actions

- Developed a carbon footprint Junior Ranger activity summer, 2009, presented several times at Jedediah Smith Redwoods State Park campground.
- Participated in Earth Day events that were sponsored by the local community.
- Park staff have participated in the "Highway Clean-Up Program" since 2002.

Park Staff

Incorporate climate change into park staff training, events, and performance plans

Developing a climate change education program for park staff is vital to increasing awareness about climate change among park visitors and fostering a sense of collective responsibility among staff to help reduce park emissions. By incorporating climate change education into staff development programs, Redwood National and State Parks will enable staff to demonstrate their commitment through leading by example, and providing visitors with the tools and resources they need to reduce GHG emissions in the park and in their own communities. Potential actions include:

- Keep staff members that are part of the Green Team/Environmental Management Team informed about climate-related issues.
 - Notify management team and Green Stew of Climate Friendly and Cool Parks Action Plan. Place information on Inside REDW about Climate Friendly and Cool Parks and actions staff can take to reduce their carbon emissions.
- Incorporate climate change issues into the employee handbook.



- Develop a wallet card for all employees that list “the 7 highly effective work habits of ‘not-so Climate Changers’.”
- Incorporate sessions on climate change into new staff training.
 - Present message on climate change at seasonal and new staff training.
- Disseminate information about climate friendly actions the park is taking at conferences, meetings, and regional workshops.
 - Add information to seasonal and new concessioner training and present brown bag lunches on the topic of the parks’ waste policy and goals to reduce the carbon emissions associated with landfill emissions.
- Develop intranet site to inform staff about climate friendly actions.
 - Place information on Inside REDW about Climate Friendly and Cool Parks and actions staff can take to reduce their carbon footprint.

Visitor Outreach

Understanding climate change and its consequences is essential to initiating individual behavioral change. Redwood National and State Parks realize that they have a unique opportunity to educate the public in a setting free from many of the distractions of daily life. By using existing materials, developing park-specific materials, highlighting what the parks are currently doing about climate change, and encouraging visitors to reduce emissions, Redwood National and State Parks can play an important role in educating the public about climate change.

Redwood National and State Parks staff recognize the many different audiences that visit the parks, including recreational and non-recreational park visitors, “virtual visitors” who visit the park online, school-aged visitors, local and out of town visitors, local tribes, and external audiences. Reaching these various audiences with climate change information and engaging them in the parks’ efforts requires appropriately focused messaging. The parks have developed a number of strategies to reach these various audiences effectively. These strategies include:

- Incorporate climate change information into visitor center displays.
 - Will create brochures that will be available at the three visitor center desks.
 - Develop “myth busters” brochures to address common climate change issues.
- Incorporate climate friendly information into interpreter programs and talks.
 - All forest walks and tide pool talks include a message about the possible impacts of climate change on the redwood ecosystem.
- Educate visitors about their recycling options at the parks and at home.
 - Present a message in the introduction of campfire programs to encourage campers to use the recycle containers available in campgrounds.
- Develop and distribute Do Your Part! and You Can Help! materials.
 - Create a link to “Do Your Part!” and “You Can Help!” on the Redwood National and State Parks website.



Local Community Outreach

The gateway communities, agencies, vendors, and volunteers surrounding Redwood National and State Parks can play a significant role in supporting the parks' climate change mitigation goals. As such, when appropriate, park staff will assist local communities with incorporating climate change messages into community events and find partners to promote climate change education at those events, and engage with surrounding agencies to coordinate effective outreach and education efforts.

Potential actions include:

- Plan a community event for Earth Day.
 - Earth Day events will include climate change messaging
- Set up a Do Your Part! and You Can Help! table at local events.
 - Add an exhibit booth at the Del Norte County and Humboldt County Fairs that expands on the display on Ocean Stewardship to be used at the annual fairs.

STRATEGY 3: EVALUATE PROGRESS AND IDENTIFY AREAS FOR IMPROVEMENT

By taking the actions established in strategies 1 and 2 above, Redwood National and State Parks plan to reduce emissions to the specified goals. Achieving these goals will require an ongoing commitment by the parks, which may include subsequent emission inventories, additional mitigation actions, and reevaluation of goals. As part of this strategy, Redwood National and State Parks will:

- Monitor progress with respect to reducing emissions. This will include subsequent emission inventories to evaluate progress toward goals stated in this action plan.
- Develop additional emission mitigation actions beyond those listed in this plan.
- Periodically review and update this plan.
- The parks will track climate friendly and Cool Parks actions through the environmental management system.



CONCLUSION

Redwood National and State Parks have a unique opportunity to serve as a model for over 400,000 recreational visitors annually.⁴ This report summarizes the operational actions the parks have committed to undertake to address climate change. Specifically, the parks realize their ability to educate the public and serve as a valuable model for citizens. By seriously addressing GHG emissions within the parks and sharing its successes with visitors, Redwood National and State Parks will help mitigate climate change far beyond the parks' boundaries.

The National Park Service and California State Parks face an uncertain future due to the possible effects of climate change. However, by seriously addressing climate change impacts and reducing emissions, Redwood National and State Parks will reduce their contribution to the problem while setting an example for its visitors. The strategies presented in this Action Plan present an aggressive first step towards moving Redwood National and State Parks to the forefront of Climate Friendly and Cool Parks.

⁴ Redwood National and State Parks: Park Statistics. Available online at: <http://www.nature.nps.gov/stats/viewReport.cfm>



APPENDIX A: LIST OF WORK GROUP PARTICIPANTS

Redwood National and State Parks Green Committee – 2010:

Keith Bensen – chairperson – NPS Resource Management and Science
Debbie Savage – NPS Interpretation
Tauna Clausen – NPS Administration
Chris Butz – CSP Maintenance
Sherry Birney – NPS Management Team
Linda Turner – NPS Resource Management and Science
Laura Denny – NPS Visitor and Resource Protection
Linda Veress – NPS Maintenance

Klamath Network Climate Friendly Parks Work Group Participants:

Debbie Savage – NPS Interpretation
Barney Riley – NPS Maintenance

