

# Forest Insects: Control and Prevention

## What are forest insects?

Many forest insects are a natural part of Colorado ecosystems that depend primarily on native tree species for survival. These insects are always present in Colorado forests, but insect populations can increase to epidemic proportions if conditions are right. Conditions that favor insect epidemics are warm climate cycles and drought, fire or other disturbances, as well as forests with larger trees. Insect epidemics can result in millions of trees turning red and eventually dying.



Mountain Pine Beetle

## Funding

These projects are possible because of Great Outdoor Colorado (GOCO) funding for inventory, protection projects and planning as well as general funding through the State Parks Resource Stewardship section. State Parks does the planning and implementation of smaller projects, while the Colorado State Forest Service oversees larger projects.



GREAT OUTDOORS  
COLORADO

Funded in part through Great Outdoor Colorado with Colorado Lottery proceeds.



## Why is it a big deal now?

Insect Control and Prevention is now in the news for numerous reasons.

**Insect Epidemics** – Insect populations have reached epidemic levels in many Colorado forests and include: mountain pine beetles in ponderosa and lodgepole pine forests; Ips beetles in pinyon forests; spruce beetle in spruce forests; and Douglas-fir beetle in Douglas-fir forests.

**Drought and Stress** – Colorado's recent drought weakened many trees, reducing their defenses against insect attacks. In general, long periods of warm temperatures support the insects' ability to reproduce and spread more rapidly.

**Maturing Forests** – Fires and logging that occurred around the late 1800s resulted in the growth of new forests around Colorado. A century later, there are widespread areas of larger-diameter trees which are better targets for forest insects. Fire suppression at lower elevations has also led to over-crowded forests that favor insect outbreaks.

**Increased Fire Threat** – Within a year, beetle-attacked trees die and the needles turn red. These 'red' trees provide dry and flammable fuels for large crown fires. Although fire risk decreases after the red needles fall from the trees, the increased fire danger in the first years after an insect outbreak may put communities, houses or lives at risk.

## How are insects being controlled and prevented on State Parks?

Although insect infestations cannot be totally prevented or controlled, State Parks is attempting to control insect infestations to reduce the risk or spread of large-scale epidemics. The main goals of insect control and prevention projects are to maintain park aesthetics and reduce fire risk. Methods include:

**Insect Field Inventories** – Identification of infested pockets of trees allows for informed planning.

**Individual Tree Control Treatments** – When small pockets of infested trees are identified, small-scale methods may be used to remove the risk of insect spread.

**Solar Treatments** – Cut trees and utilize solar energy to kill existing beetles.

**Cutting and de-barking** – Cut trees and remove bark to expose and kill existing beetles.

**Preventative Treatments (Forest Management)** – When the main goal is to reduce insect infestation, thinning may serve to increase the vigor of individual trees and improve their resistance to insects.

**Preventative Treatments (Chemical)** – Approved, registered chemicals may be applied to individual or groups of trees that are targeted for protection from insects (see photo ►).



Beetle Spraying



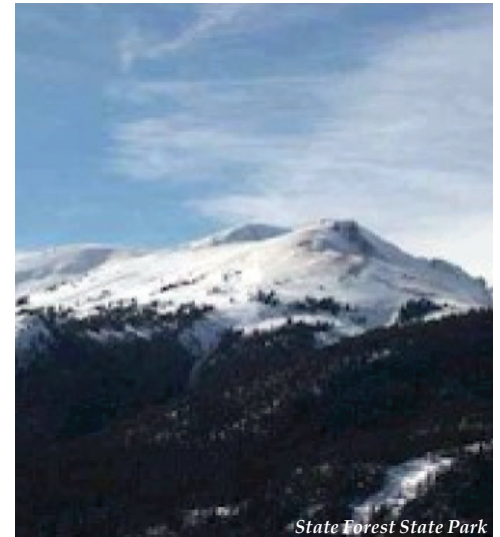
# Insect Control and Prevention On Colorado State Parks

## State Forest State Park

For the past 2 years, the Colorado State Forest Service (CSFS) and State Parks staff have targeted mountain pine and spruce beetles at State Forest State Park.

- CSFS has completed an **assessment of priorities** for insect work in areas of high use such as the Visitor's Center, campgrounds and cabins.
- **Satellite-photos** were acquired to guide Park priorities.
- **Direct control** including clear-cutting in infested areas and individual tree removal.
- **Preventative management** that includes spraying **chemicals** to prevent attacks on individual trees and **thinning** forests to improve tree resistance to insects.

Priorities for insect management outlined in the Colorado State Forest Service assessment will guide work in future years.



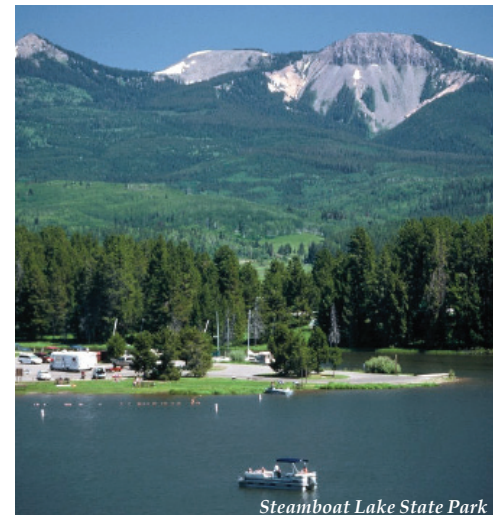
State Forest State Park

## Steamboat Lake State Park

Since 2002, Steamboat Lake State Park has aimed to **slow or halt the spread of mountain pine beetles**. Main goals are to maintain the aesthetics and recreation values around the Sunrise Vista and Dutch Hill Campgrounds. This is accomplished by:

- **Removing** ~200 infected trees annually.
- **Thinning forests** to a minimum of 8 feet between trees to improve forest resistance to beetle infestation.
- Applying approved **chemical treatments** to prevent beetle attack on high-value trees.

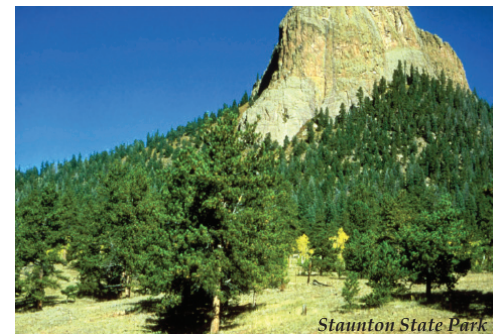
Steamboat Lake State Park has spent over **\$26,000 per year** and has successfully reduced beetle infestation on over 100 acres around the Park's campgrounds.



Steamboat Lake State Park

## Staunton State Park

Insect control and prevention projects have been done at Staunton State Park since the 1980s. Insect infestation has been relatively low, so the park can be proactive in preventing future insect epidemics. Park staff has enlisted the help of the Colorado State Forest Service in an **inventory** of mountain pine and ips beetle-infested trees. Every year, target trees have been cut and insects have been controlled by **solar treatment** or **de-barking**. Staunton State Park has spent ~\$1500 in 2005 and has successfully stopped beetle infection in certain areas of the Park.



Staunton State Park

## Long-term Benefits

Projects occur as needed on other State parks with insect problems. Projects that reduce the risk or spread of large-scale insect epidemics aim to preserve the aesthetic and recreational quality of our Parks. While insect epidemics cannot be stopped completely, work on State Parks may serve to protect valuable resources.