



# Bark beetles on white pine in Bohemian Switzerland National Park



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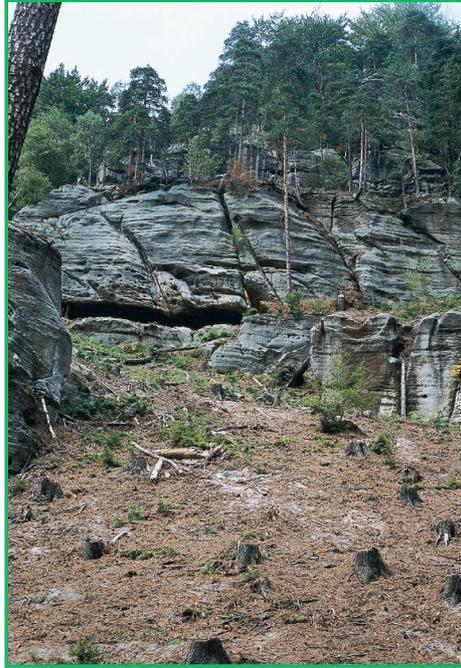
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The main coniferous tree species in the Bohemian Switzerland National Park are Norway spruce (*Picea abies*), Scotch pine (*Pinus silvestris*) and white pine (*Pinus strobus*). While the first two species are native in the region, *Pinus strobus* belongs to the introduced species. Because of the mission and management rules in the national park, the target stage is the forest stands consisting of native tree species only. *Pinus strobus* is eradicated therefore.



Standing pine trees attacked by bark beetles



Pine stand after eradication of *Pinus strobus*



Tops and branches of cut trees were chipped; wood chips are left on the ground in the stand

On the places where removing of cut trees is difficult, logs are left on site. No chemical treatment is used within the national park. This eradication program of *Pinus strobus* developed the questions, if possible bark and wood boring insects, mainly bark beetles, attracted to host material could make some additional damages on native tree species in neighboring stands consequently. The bark beetle species synusia on cut wood are observed and the risk of this management to other conifers is evaluated. The most frequent bark beetles attacking cut trees of *Pinus strobus* are *Ips amitinus* (Eichhoff), *Pityogenes chalcographus* (L.) and *Polygraphus poligraphus* (L.). All these species are polyphagous and may potentially increase their population density rapidly and attack remaining conifer stands. On endangered localities the chipping of tops and branches of cut trees is used as a protection method mainly as well as debarking of logs.



Infested log of spruce by *Ips amitinus*; entrance holes with frass

## Other bark beetle species occurring on conifers in NP:

### Species with economic importance:

- Pityogenes bidentatus* (Herbst)
- Tomicus piniperda* (L.)
- Tomicus minor* (Hartig)
- Trypodendron lineatum* (Olivier)

### Indifferent species:

- Dryocoetes autographus* (Ratzeburg)
- Hylurgops palliatus* (Gyllenhal)



Predation by birds on larvae of bark beetles on *Pinus silvestris*



*Ips amitinus* (Eichhoff)



*Pityogenes chalcographus* (L.)



*Polygraphus poligraphus* (L.)



Galleries of particular species: *Ips amitinus*, *Pityogenes chalcographus*, *Polygraphus poligraphus*