

CONSERVING WHITEBARK PINE IN SKI AREAS

DEMONSTRATIONS AT WHITEFISH MOUNTAIN RESORT



Field Trip Summary 11 | September 2016

As part of the Whitebark Pine Ecosystem Foundation's Annual Science and Management Workshop - *Successes and Challenges in Managing the Jewel in the Crown of the Continent*, participants saw first hand some of the challenges facing whitebark pine restoration, and they witnessed certification of the first Whitebark Pine Friendly Ski Area. The workshop highlighted the rapid decline of whitebark pine (*Pinus albicaulis*) in the Crown of the Continent, or the Northern Continental Divide Ecosystem, due to high mortality from white pine blister rust (*Cronartium ribicola*) and mountain pine beetles (*Dendroctonus ponderosae*).

The day after the workshop participants visited Whitefish Mountain resort (WMR). The WMR has become a partner in whitebark pine (WBP) conservation awareness and active restoration. Field trip participants included a diverse group of researchers and managers with varied backgrounds, experience, and expertise. While all were instrumental in guiding discussions on this trip, several area experts were instrumental in trip logistics, discussions, and demonstrations -

- Karl Anderson, Forest Culturist, Flathead National Forest (FNF)
- Teresa Byrd, Revegetation Technician and Certified Tree Climber, Glacier National Park
- Edie Dooley, Board Member, Whitebark Pine Ecosystem Foundation
- Mike Giesey, Forest Silviculturist, Kootenai NF
- Melissa Jenkins, Forest Silviculturist, FNF
- Riley Polumbus, Public Relations Manager, WMR
- Andrew Santiago, Forestry Technician and Certified Tree Climber, FNF

WHITEBARK PINE FRIENDLY SKI AREA

Ski areas represent some of the easiest access to whitebark pine's high-elevation habitats. Ski areas also pose a threat to whitebark pine habitat through development. Because of this, they provide a unique opportunity to increase awareness about this species, its ecosystem importance, current perils, and conservation and restoration needs.



Figure 1. Whitebark Pine Ecosystem Foundation members certify Whitefish Mountain Resort as the first Whitebark Pine Friendly Ski Area. Photo courtesy of NRRFSN.

First order of business was for the Whitebark Pine Ecosystem Foundation (WPEF) to officially certify WMR as the first Whitebark Pine Friendly Ski Area in North America. Edie Dooley, who has spearheaded the WPEF's Ski Area Partnership Initiative, presented Brian Carper, the resort's Lodging Director, a plaque and logo-branded hat to signify the certification (Figure 1).

For four years, the WPEF has worked to develop the Ski Area Partnership Initiative, including certification guidelines and checklists, which outline the requirements and procedures necessary for ski areas to earn and maintain WBP friendly status. Guidelines are designed to promote WBP education, conservation, and to support management, restoration, and research.

Guidelines include several requirements and options -

- Educate resort employees so they understand their work's impact on WBP and can educate the public
- Identify and label prominent WBP trees
- Display educational signs and the WBP Friendly Ski Area logo
- Identify other educational programs, events, or signage to complement the ski area's goals
- Map the distribution of WBP within the resort
- Incorporate WBP conservation into management and expansion plans

- Monitor WBP abundance and health
- Develop an active management plan to protect large WBP trees, prune WPBR infections, or reduce ladder fuels around WBP
- Work with the US Forest Service to collect WBP cones, identify planting areas, and host an ecological study



Figure 2. Tree climber collecting caged cones (circled) from a WPBR-resistant tree at Whitefish Mountain Resort. Photo courtesy of NRFNS.

CAGING AND RETRIEVING WBP CONES

Whitebark pine restoration includes a large-scale, complex process of genetic rust resistance breeding along with planting seedlings showing resistance to white pine blister rust (WPBR). Cones are collected from trees that have survived WPBR exposure and appear healthy. This involves caging and collecting cones, separating seeds from cones, growing seedlings, and providing some seed to the regional genetic WPBR-resistant breeding program. It takes about 3 years before seedlings are available for planting.

The steps and time required to produce a single WPBR-resistant seedling dictate a slow process, one tedious and slow step in this process being cone collection (Figure 2). Once a phenotypically WPBR-resistant tree is identified and labeled, certified tree climbers must scale the tree in early summer and cage the tip of every cone-producing branch. Caging involves creating an envelope around developing cones. The envelope is made of mesh metal, which is attached in a way that allows cone size to increase but

excludes squirrels and birds. Cones must ripen on the tree before being collected for seed. To collect the ripe cones, tree climbers once again scale the tree and begin the delicate cone collection process. Climbers take great care not to damage the tree, its branches, and conelets, which are next year's cone crop. They also must ensure that no cones fall to the ground by securing them in their cages and then into collection bags. Contact with the ground could mean potential exposure to *Fusarium*, a plant pathogen, which if transferred to a nursery can result in stock losses.

With all the threats to whitebark pine survival from the harsh high-elevation sites it occupies, to periodic beetle outbreaks, disease from WPBR, and loss of habitat to development, participants appreciated seeing all that is being done in partnership for education, conservation, and restoration for WBP.

ADDITIONAL READING & INFORMATION

Dooley, E. 2016. Whitebark Pine Friendly Ski Area Certification Program launches this fall at Whitefish Mountain, Montana. *Nutcracker Notes*. 30: Spring 2016.

United States Forest Service. National Tree Climbing Program. www.fs.fed.us/treeclimbing/index.shtml [Accessed 9/28/2016].

Whitebark Pine Ecosystem Foundation 2015. Whitebark pine friendly ski area—Certification guidelines and checklist.

Field trip coordinators – The Whitebark Pine Ecosystem Foundation, The Flathead National Forest, Whitefish Mountain Resort, The Northern Rockies Fire Science Network

Field trip cadre – Karl Anderson, Forest Culturist, Flathead NF; Melissa Jenkins, Forest Silviculturist, Flathead NF; Edie Dooley, Board Member, WPEF; Riley Polumbus, PR Manager, WMR; Mike Giesey, Forest Silviculturist, Kootenai NF; Andrew Santiago, Forestry Technician and Certified Tree Climber, Flathead NF; Teresa Byrd, Revegetation Technician and Certified Tree Climber, Glacier National Park

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The Northern Rockies Fire Science Network (NRFNS) aims to be a go-to resource for managers and scientists involved in fire and fuels management in the Northern Rockies. The NRFNS facilitates knowledge exchange by bringing people together to strengthen collaborations, synthesize science, and enhance science application around critical management issues.

