

INVASIVE PLANT & VEGETATION MONITORING PROCEDURES FOR WILDFIRE IMPACTED PARKS & PROTECTED AREAS



MINISTRY OF ENVIRONMENT
ENVIRONMENTAL STEWARDSHIP DIVISION



Prepared By:

Judy Millar, RPBio, Ecosystem Biologist
Crystal Klym, Invasive Plant Program Technician

Area of Interest

Wildfire impacted Provincial Parks (PP), Protected Areas (PA), Ecological Reserves (ER) and Conservation Lands (CL) managed by the Ministry of Environment (MOE), Environmental Stewardship Division (ESD).

Specific PP and PA within this area of interest include:

- Okanagan Mountain PP (2003 wildfire);
- Vaseux PP and PA (2003 wildfire); and
- Anarchist PA (2003 wildfire).

Objectives

Establish vegetation transects and permanent photo monitoring points within wildfire impacted areas to monitor natural plant community and invasive plant response to wildfire.

Overview

Vegetation transects and photo points will be established within wildfire impacted areas. The following influences will be considered to ensure representative sites are selected for data collection and monitoring:

- Existing burn severities (extreme, high, moderate and low);
- Dominant BEC zones/subzones (e.g. PPxh) within each burn severity;
- Adjacency to vectors¹ (trails, parking lots, access roads, day use areas, campgrounds, toilet facilities, etc); and
- Fire suppression disturbances (fire guards).

Specifically to invasive plants, vegetation transects and photo points will be established within post-wildfire treatment areas (chemical, mechanical and/or biological) to monitor treatment success; therefore, allowing for informed follow-up treatment recommendations. In addition, invasive plant specific monitoring will be implemented along utility corridors and fire suppression disturbances (fire guards) as well as parallel or perpendicular to vectors (trails, parking lots, access roads, day use areas, toilet facilities, etc).

Vegetation monitoring and photo point establishment will assist in studying the following questions:

1. What are the successional stages of natural plant community development over time (species composition, density, distribution, percent cover, coarse woody debris, litter, etc.)?
2. What site characteristics (burn severity, aspect, slope, soil properties, water availability, etc) influence plant community response to wildfire?

¹ Monitoring vectors will assist in identifying invasive plant routes of spread.

3. What invasive plant management and control methods are most effective given site characteristics and species composition?
4. What invasive plants encroach on wildfire impacted areas and is there a relationship between burn severity and invasive plant species composition, distribution and density?

Equipment

The following field equipment will be used in establishing vegetation transects and photo monitoring points:

- Standard film camera or digital camera.
- Applicable Forms:
 - Photo Point Site Description Form
 - Vegetation Plot Record
- Meter board with support rebar or stake.
- Clipboard with its support to hold the Photo Identification Form.
- Rebar “bent” at the top and dipped/sprayed with bright blue paint to allow for easier identification and a hammer for installation.
- Large painted metal nails/spikes to mark the four corners of the Daubenmire plot.
- Compass set to the correct declination.
- 50-100 meter measuring tape for measuring distance in meters.
- Two metal spikes to hold the measuring tape in place.
- Daubenmire plot.

Procedures: Vegetation Transects

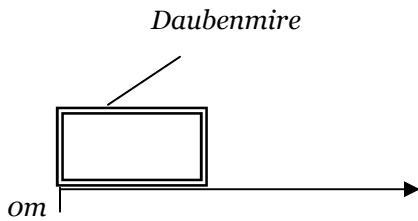
Step 1: Pre-Field

1. Using GIS mapping software, pre-select transect locations based on burn severity boundaries, BEC² zones/subzones.
2. Identify fire suppression disturbances and vectors for invasive plant specific monitoring including areas that have been and/or will be treated using chemical, mechanical and/or biological control.

Step 2: Field

1. Establish a 100m transect following the contour of the terrain and record the bearing in degrees.

² Each BEC zone/sub-zone will be represented within each burn severity.



2. At each 10m marking, starting at 0m and finishing at 100m, place the daubenmire plot parallel to the measuring tape, on the ground and to the left travelling from 0m to 100m. Ensure that the “bottom” on the plot is at the correct marker (0m, 10m...100m).
3. Within the daubenmire plot record the percent cover (may exceed 100%) of all species including bryophytes, lichens, trees, forbs, shrubs, ferns and scat, etc) as well as exposed mineral soil, exposed parent material, wildlife presence, coarse woody debris and rock. Additional observations will include vegetation transect proximity to vectors, seepage sites, riparian areas, fire suppression disturbances, etc.
4. Record the coordinates for each plot and photo point in NAD 83/UTM format using a GPS unit. Always record the accuracy in meters as shown on the GPS unit.

Procedures: Photo Point Monitoring

Permanent photo points will be established at 25m and 75m along the vegetation transect. Each of these points will be marked with a permanent marker (blue painted rebar).

Step 1: Timing

Photographs will be taken on well lit days from 10:00am to 2:00pm between mid-June to mid-September. Site specific timing will be determined based on site characteristics such as elevation and vegetation biology.

Step 2: Camera Locations

Camera locations are the points along the transect where photographs are taken.

Photo Point 1 (25m)

Photo 1: At 15m looking towards the meter board (photo point) with the meter board as the focal point (center point) of the photograph.



Photo 2: At 20m with the meter board lined up with the left border of the photograph.



Photo 3: At 20m with the meter board lined up with the right border of the photograph.



At this time the meter board will be turned around and photographs will be taken from the opposite direction.

Photo 4: At 35m looking towards the meter board (photo point) with the meter board as the focal point (center point) of the photograph.

Photo 5: At 30m with the meter board lined up with the left border of the photograph.

Photo 6: At 30m with the meter board lined up with the right border of the photograph.

Photo Point 2 (75m)

Photo 1: At 65m looking towards the meter board (photo point) with the meter board as the focal point (center point) of the photograph.

Photo 2: At 70m with the meter board lined up with the left border of the photograph.

Photo 3: At 70m with the meter board lined up with the left border of the photograph.

At this time the meter board will be turned around and photographs will be taken from the opposite direction.

Photo 4: At 85m looking towards the meter board (photo point) with the meter board as the focal point (center point) of the photograph.

Photo 5: At 80m with the meter board lined up with the left border of the photograph.

Photo 6: At 80m with the meter board lined up with the left border of the photograph.

Recommendations

To reach the outlined objective, “to monitor natural plant community and invasive plant response to wildfire”, it is critical to revisit established plots and photo points over time using the same data collection procedures. Ideally, the sites will be revisited in 2005 (two years post-fire), 2008 (five years post-fire) and 2013 (10 years post-fire).

Appendices

Appendix 1: Photo Point Site Description and Location Form (blank)

Appendix 2: Photo Point Site Description and Location Form (example)

Appendix 3: Vegetation Plot Form

Appendix 4: Areas of Interest with 2004 Monitoring Plots