

Prairie Monitoring

San Juan Island

I & M RESOURCE BRIEF



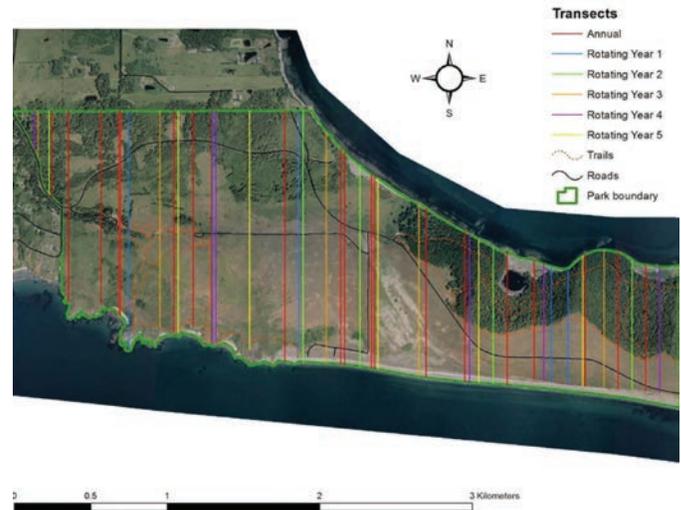
Importance

Prairies and Garry oak woodlands were once extensively distributed across the lowlands of western Washington and Oregon. Today, it is estimated that less than 3% of these areas still exist and many are severely degraded. These communities are an important component of landscapes in Ebey's Landing National Historical Reserve (EBLA) and San Juan Island National Historical Park (SAJH). Historically, prairies provided an important visual and biologic component of the matrix of landscapes that today comprise the cultural landscape. The landscape in San Juan National Historical Park included large treeless areas prior to the arrival of Europeans in the 1800's. During the historic period of the Hudson Bay Company (1853), Bellevue Farm was established in the area now called American Camp and over 4,000 sheep, cattle, horses, and hogs grazed on much of the area. Additionally, farming and the introduction of rabbits altered the native prairies. Despite the past alteration of these landscapes, significant remnants of native prairies and oak woodlands remain in SAJH. Currently about 281 hectares (694 acres) of prairie remain at American Camp and 26 ha (64 acres) at English Camp. Recent surveys documented at least 87 patches (34 ha or 84 acres) of native prairie distributed across the American Camp landscape. Protection of prairie remnants and restoration of degraded prairies to native plant communities will increase connectivity among prairies across the western Washington landscape. Increasing connectivity will increase the adaptive capacity of native biota of prairies ecosystem which are increasingly threatened by anthropogenic development and climate change. Monitoring of prairie conditions is important because it provides park management with the status of native and exotic plant distributions and this information can guide annual work plans regarding exotic plant control and restoration.

Status and Trends

Monitoring of prairies in San Juan Island National Park will begin in 2012. Our monitoring program uses a two-stage sampling design:

- First stage sampling is conducted along parallel transects to detect changes in physiognomic cover classes. The physiognomic cover classes we use are: trees, shrubs, herbaceous vegetation, unvegetated, and developed zones. Observers walk along transects (Figure opposite) and record each cover class they encounter and whether the vegetated cover classes are predominately native or exotic vegetation. Transects were drawn using a Generalized Random Tessellation Stratified (GRTS) sample.



- Second stage sampling focuses on composition of herbaceous communities. One-meter square quadrats are placed systematically along transects and all plant species within each quadrat are identified and recorded along with an estimate of percent of the quadrat that they occupy.

Results of monitoring will be summarized in annual and five-year reports and in an Ecological Integrity Scorecard. Pilot data from 2008 are summarized in a scorecard. Today, the landscape distribution of forests and prairies is very similar to the scene during the historic period of the mid 1800's. Forests are dominated by native tree species, but the integrity of shrub and prairie communities are threatened by introduced plant species that are displacing native species. Exotic shrubs such as Himalayan blackberry (*Rubus discolor*), cutleaf blackberry (*Rubus laciniatus*), and oneseed hawthorn (*Crataegus monogyna*) are spreading rapidly with shrub and prairie communities. Exotic grasses such as velvet grass (*Holcus lanatus*), quackgrass (*Elymus repens*), and cheat grass (*Bromus tectorum*) dominate many areas of prairie and the Garry Oak woodland. Monitoring results will be used by the park to inform priorities of the NCCN Exotic Plant Management Team and prairie restoration plans.

Discussion

The vast, open prairie landscape of San Juan Island National Historical Park's American Camp unit and the oak prairie woodland at English Camp are integral to the history of the park, which was originally established to interpret the story of the Pig War. Landscape distribution of the plant communities (trees, shrubs, and prairies) tells the story of human use and protection of these unique ecosystems. Oral histories indicate that prehistoric and historic native peoples once had winter villages and summer camps on the prairies. They gathered edible plants and promoted growth of some, such as camas, through the use of fire, in addition to hunting deer and fishing for salmon in adjoining waters. Today, the prairie monitoring protocol will provide important scientific data on the distribution and condition (i.e. biodiversity) of prairies, forests, and shrub communities that will be used to inform development of the Prairie Stewardship Plan, update the Fire Management Plan, and guide Exotic Plant Management activities.

Opposite Vegetation group refining prairie monitoring procedures. NPS/SAJH

Above Left Native prairie patch composed of Roemer's fescue (*Festuca roemer*), western buttercups (*Ranunculus occidentalis*), common camas (*Camassia quamash*), and chocolate lily (*Fritillaria affinis*). NPS/SAJH

Above Right Monitoring transects at American Camp, SAJH.

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