Practical Application of Ecological Knowledge

North Saanich has numerous beautiful parks with diverse natural areas. Incorporating ecological concepts into operationally practical park management approaches can help ensure healthy and biodiverse ecosystems in parks. Not surprisingly, North Saanich residents could apply many of these suggestions in their own backyards.

Overarching Ecological Concepts

To apply an ecological lens to parks management, certain concepts should be understood. Although general in mature, these concepts can be used for making decisions in specific situations, as outlined below in separate sections. The major ecological concepts include:

- Cycles — Nutrients, water, and populations move in cycles.
- Diversity — A rich and diverse environment is more resilient and sustainable.
- Food Web — Everything in nature is food for something else.
- Change — Ecosystems are dynamic.
- Interactions — There are an almost limitless number of relationships and impacts that organisms experience in an ecosystem. This includes the effect they have on one another, as well as the effect on overall ecosystem function and health.

- Motivations — Every species is driven by food, shelter, water, and reproduction.
- Climate — Precipitation, temperature ranges, and severe weather events influence ecosystem success.

Coarse Woody Debris

Natural, unmanaged forests contain fallen trees in all manner of sizes and states of decay. This supports a multitude of ecological processes and organisms. The greater the variability in coarse woody debris in managed stands, the greater the number of ecological functions and native species that can be maintained.

Decayed logs release nutrients and moisture slowly. Coarse woody debris provides habitat for a variety of plants, invertebrates, vertebrates and a wide spectrum of fungi and microscopic organisms. Standing dead trees (i.e., snags) provide food sources and habitat for birds and small mammals. Knowing the benefits of coarse woody debris suggests the following management approaches:

- Retain woody debris for future habitat for flora and fauna.
- Mimic the natural fall from the stand. Don’t pile logs, scatter instead.
- Bring dead hanging branches or snags (ladder fuels) to the ground when a threat to the public exists.
- In areas with high fire risk, it may be necessary to reduce coarse woody debris levels through thinning or other fuel reduction techniques. It's important to consider the size, distribution, and decay status of the debris. The further decayed the debris, the less likely it may act as fuel.

Pruning

Pruning involves selectively cutting individual branches, whereas shearing involves non-selectively cutting all branches evenly. In a forest stand, pruning is usually the appropriate method to rejuvenate older plants, encourage flowering, reduce crown size and hazards, and control growth. That being said, it's a forest, not a garden, so pruning should be limited.

Pruning is advisable when:

- Tree branches are crossed, dead, dying or decayed.
- Lower branches are interfering with people or vehicles.
- Large limbs are broken.
- Trees are too large and might cause damage.

Turf Management

Mowing has been found to increase pest species, and to diminish the abundance and diversity of invertebrates and flora. An environmentally friendly alternative to a monoculture of grass is to use seed mix that includes native species. The benefits of a native lawn include: attracting beneficial insects, weed resistance, and replenishing soil nutrients. Less frequent mowing would reduce emissions from fuel-powered equipment and improve stormwater infiltration. Rewilding grassed areas with native meadows would lead to even greater species diversity and habitat, resilience, soil health, and stormwater management.

Water Management

Some of the parks in north Saanich include ponds and creeks, which expand the habitat and types of animal and plant species present. Water features are also pleasant attractions for humans. Parks are a prime location for managing stormwater in a natural fashion. Natural areas can be used to let stormwater simply infiltrate, rather than having to create ditches or install drainage pipes. Dispersion and infiltration can work well with the natural landforms and topography. Other approaches to natural water management include: maximizing permeability by not paving parking areas; retaining wetlands as much as possible, including their soggy, vegetated edges; resisting the temptation to direct water flow too much.

Invasive Species Management

Invasive plant species in North Saanich parks decrease biodiversity, suffocate native species, and negatively affect the ecosystem and its soils. Because native plants have been part of their environment for so long, they are interconnected with fungal networks, soil health, and wildlife in a way that introduced species are not. Ninety percent of insects only eat the leaves of plants with which they co-evolved. Native plants lead to better pollination, increased genetic variety, and resilience in local ecosystems.

Volunteers currently work to remove invasive plant species, with as little impact on native species and the surrounding environment (e.g.,nesting birds) as possible. Different proven removal techniques and timing are required for the variety of invasive species. Most involve fully removing the offending plant. Chemical control should be avoided.

The District of Saanich has produced an informative brochure on how to identify and remove the most widespread invasive plant species in the area. This often requires exertion and patience.

Timing of Activities

Controlling the timing of activities in the parks is almost as important as how they are conducted. Some suggestions:

- Schedule maintenance outside nesting seasons, or take measures to ensure birds are not present and nesting before extensive brush removal.
- Maintenance activities should be light in the late summer when many trees and plants are stressed due to drought.
- Plant trees in fall in appropriate micro-sites (i.e., where soil, water, and sun/shade conditions are right for the species).