Conservation 101: Alvars

Nature Conservancy Canada

Our Partner: toronto zoo — Same planet. Different world.

Many alvar plants are rare. Lakeside daisy (above) is found only on Manitoulin Island and the Northern Bruce Peninsula; photo by NCC.

What are alvars?

Alvars are globally rare, naturally open habitats with either a thin covering of soil or no soil over a base of limestone or dolostone. Their unique features are the result of seasonal extremes from spring and fall flooding to summer drought.

Where in the world are alvars found?

Worldwide, alvars are known from islands off the coast of Sweden, the eastern European Baltic region, the United Kingdom and Ireland, and northeastern North America.

In Canada, alvars are found in the Great Lakes Basin, as well as in Manitoba, Newfoundland, Quebec and the Northwest Territories. Within the Great Lakes Basin, alvars are found in a series of clusters just south of the Canadian Shield, and in a few isolated patches in far southern Ontario. They extend from Manitoulin Island and the Bruce Peninsula across to the limestone plains in eastern Ontario, and down to Pelee Island. More than 60 percent of the alvars in the Great Lakes Basin occur in Ontario.

Why are alvars important?

While at first glance alvars may appear barren, at a small scale they can be among the most species-rich communities in the world. In Ontario, extensive grassland alvars provide seasonal habitat for grassland birds, North America's fastest declining bird group.

Some plant, moss and lichen species are specifically adapted to alvar conditions and are found on no other habitat in the world. In fact, 54 plant species in Ontario were found mainly on alvar habitat.

Alvars are an important and beautiful feature of Ontario's landscape, and are excellent sites for greater education and research of this rare habitat.

The eastern loggerhead shrike (above) is an at-risk grassland bird. Loss of grassland habitat is the biggest threat to this and many other birds; photo by Dave Menke.

What are the threats to alvars?

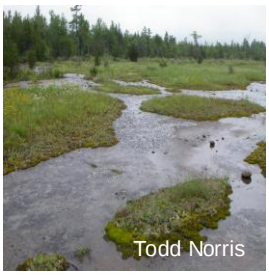
1. Quarrying: rock quarries continue to be the number one threat to alvar habitats in some regions, particularly those close to large urban markets.
2. Urban and rural development: construction of houses, cottages, incompatible agriculture or industry on alvar habitat, and construction or widening of roads.
3. Disturbance by motorized vehicles (ATVs, dirt bikes) and cyclists: incompatible recreational use leads to trampling of vegetation, soil erosion and changes to drainage regimes.
4. Introduction of invasive and weedy species: Eurasian grasses, including Timothy and Kentucky bluegrass, and other invasive species outcompete native species and change habitat composition.
5. Overgrazing/over browsing: livestock and wildlife, including deer, can impact alvar species and composition.

TYPES OF ALVARS

There are five recognized alvar types. These are based on the amount of soil present. Vegetation varies in each alvar type depending on location, soil moisture and length of drought period.

Alvar pavement

- Occurs on exposed rock (at least 50 percent) which may be cracked or fissured
- Less than 2 cm of soil
- Vegetation is patchy, mosses and lichens are dominant; early saxifrage, false pennyroyal and rough bentgrass can also be found here
- Studies have revealed that this type of alvar may have the most plant diversity
- Examples: Manitoulin Island, Northern Bruce Peninsula



Alvar shrubland

- Moderate to high cover of shrubs, low tree cover, appears stunted
- Species include shrubby cinquefoil, creeping juniper, ground juniper and fragrant sumac
- Examples: Carden Alvar, Manitoulin Island

Alvar savannah

- Most uncommon alvar type
- Scattered tree cover ranges from 10-25 percent, usually oak or pine
- Provide more range of habitat for wildlife, including birds and mammals, than other alvar types
- Example: Stone Road Alvar on Pelee Island

Alvar grassland

- Supports grasses and sedges
- Vegetation is more continuous –more meadow like
- Soil depths range from 1-10 cm
- Species vary, usually based on extent of flooding in the spring, and include tufted hairgrass, poverty oatgrass and little bluestem
- Examples: Carden Alvar, Napanee Plain

Alvar woodland

- Tree cover is the highest in this community
- Conifers are common in woodland alvars including eastern red-cedar, northern white cedar, white spruce and eastern white pine
- Often adjacent to other alvar types
- Examples: Manitoulin Island, Napanee Plain

Get in touch:

If you would like more information about alvars and caring for alvars, contact us at:

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This factsheet was produced with support from the Toronto Zoo's Endangered Species Fund.