TOPIC – Traits of Plants in Canada
RNCan, Service canadien des forêts / NRCan, Canadian Forest Service
Centre de foresterie des Grands Lacs / Great Lakes Forestry Centre
1219 Queen St. East, Sault Ste. Marie, Ontario P6A 2E5
Courriel / Email: Isabelle.Aubin@NRCan.gc.ca

The TOPIC Database : a database of functional traits of the vascular flora of Canada

Abstract

Created at the University of Montreal in 2004 to document functional traits of the vascular flora of Québec, TOPIQ, renamed Traits of Plants in Canada (TOPIC) in 2011, is now managed by the Canadian Forest Service of Natural Resources Canada at the Great Lakes Forestry Centre. The database manager is Isabelle Aubin (Canadian Forest Service) and the co-authors of the database are the late André Bouchard (University of Montreal), Christian Messier (Université du Québec à Montréal) and Sophie Gachet (Université Paul Cézanne, IMEP, France). The TOPIC Database structure was based on the model of Grime *et al*. (1988). Data is classified in four main categories, namely : morphology and strategy of the adult plant, strategy for regeneration and dispersion, resource utilization and others. Almost 1650 species and 40 functional traits are documented in the database. The traits are documented from the scientific literature (95%), as well as from measurements on herbarium specimens (5%). The database is run offline with the Oracle software. Data is provided by the members of the network and is available to anyone interested in contributing to the network.

Keywords

Plant functional traits, Canada, morphology, regeneration, disturbance

The TOPIC Database should be cited as follows

Aubin I., Messier C., Gachet S., Lawrence K., McKenney D., Arseneault A., Bell W., De Grandpré L., Shipley B., Ricard J.P., Munson A.D. 2012. TOPIC – Traits of Plants in Canada. Natural Resources Canada, Canadian Forest Service, Sault Ste. Marie, Ontario. Available online at http://topic.nrcan.gc.ca.

Reference

Grime, J.P., Hodgson, J.G. and Hunt, R. 1988. Comparative plant ecology. A functional approach to common British species. Unwin Hyman, London, United Kingdom, pp. 742.

Documented functional traits of the TOPIC Database
– March 2017 –

Total species documented across traits**: 1143 species

**Except species documented for seed weight and/or water preference only

I. Morphology and strategy of the adult plant

Trait name	Type of data	Percent documented	Standardization
Morphological type	Nominal	64%	Standardized
Raunkiaer life form	Nominal	64%	Standardized
Maximum height	Numerical	78%	Standardized
Life Cycle	Nominal	63%	Standardized
Lateral extension	Nominal	27%	In progress
Vegetative propagation	Nominal	61%	In progress
Underground storage	Nominal	34%	In progress
Foliage type	Nominal	58%	Standardized
Foliage persistence	Nominal	56%	Standardized
Foliage structure	Nominal	50%	Standardized
Foliage orientation	Nominal	3%	In progress
Root depth	Nominal or numerical	30%	In progress
Physical defence	Nominal	48%	Standardized
Growth	Nominal	35%	In progress
Nutritional adaptations	Nominal	3%	In progress
Fire resistance	Nominal	16%	In progress

II. Strategy for regeneration and dispersion

Trait name	Type of data	Percent documented	Standardization
Mode of reproduction	Nominal	52%	Standardized
Flowering phenology	Nominal	60%	Standardized
Inflorescence type	Nominal	52%	Standardized
Inflorescence colour	Nominal	53%	Standardized
Cleistogamous	Nominal	42%	Standardized
Pollination vector	Nominal	38%	In progress
Age of sexual maturity	Numerical	25%	In progress
Seed production	Nominal	25%	In progress
Seed dispersal vector	Nominal	76%	Standardized
Seed length	Numerical	64%	Standardized

Seed width	Numerical	20%	Standardized
Seed depth	Numerical	12%	Standardized
Dispersule length	Numerical	31%	Standardized
Dispersule width	Numerical	9%	Standardized
Dispersule depth	Numerical	1%	Standardized
Dispersule type	Nominal	55%	In progress
Seed persistence	Nominal	47%	In progress
Seed dormancy	Nominal	41%	Standardized
Seed weight	Numerical	74%[a]	Standardized
Age of optimum seed production	Numerical	11%	In progress
Frequency of good seed crops	Numerical	14%	In progress
Fire tolerance	Nominal	16%	In progress

III. Resource utilization

Trait name	Type of data	Percent documented	Standardization
Water preference	Nominal	80%[b]	In progress
Light requirement	Nominal	49%	Standardized
Maximum pH	Numerical	7%	Standardized
Minimum pH	Numerical	7%	Standardized
Minimum tolerable temperature	Numerical	16%	In progress
Minimum tolerable Rainfall	Numerical	16%	In progress
Minimum frost free days	Numerical	16%	In progress
Drought tolerance	Nominal	16%	In progress

IV. Others

Trait name	Type of data	Percent documented	Standardization
Status	Nominal	59%	Standardized
Habitat description	Descriptive	54%	In progress
Disturbance earthworm invasion	Nominal	7%	In progress

[a] Out of 1647 species
[b] Out of 3277 species