

# **SBW AIDD: Developing an Adaptive and Intelligent Defoliation Detector**

Adaptive deep and transfer learning to predict tree level SBW annual and cumulative defoliation at various platforms

**SBW EIS Phase II Remote Sensing Project**

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# List of abbreviations used

AnnBr - current / annual defoliation estimated through branch / shoot assessment

AnnOc - current / annual defoliation estimated through ocular / binocular assessment

CB – Campbellton sites, NB

CHM – Canopy height model

CNN – Convolutional Neural Network

CS – Causapscal, QC

CumBr– cumulative defoliation estimated through branch / shoot assessment

CumOc – cumulative defoliation estimated through ocular / binocular assessment

CurBr– current / annual defoliation estimated through branch / shoot assessment

CurOc – current / annual defoliation estimated through ocular / binocular assessment

DEM – Digital elevation model

DSM – Digital surface model

GPS – Global Positioning System

Med\_CumBr– cumulative defoliation summarized as the median of the sampled shoots

Med\_CurBr – annual defoliation summarized as the median of the sampled shoots

MSS –Multi spectral sensor / camera acquiring data in red, green, blue, red edge and near infra red regions

NB – New Brunswick

NoDef – No defoliation (healthy, unaffected by SBW)

QC – Quebec

Res – image resolution

RGB – sensor / camera acquiring data in red, green and blue visible regions of the light spectrum

RTK – Real Time Kinematics

SD – Saint-Donat, QC

SMOTE – Synthetic Minority OverSampling Technique

SWIR – Short wave infra red

UAV – Unmanned Aerial Vehicle or commonly known as drone

VI – Vegetation index

BRDF – Bidirectional reflectance distribution function

TIR – Thermal Infrared

GCP – Ground control point

NDRG – Normalised difference of red and green

TGI – Triangular greenness index

VARI – Visible atmospherically resistant index

VIBR – Vegetation Index with ratio of blue to red

GNDVI – Green normalized vegetation index

NDVI – Normalized vegetation index

CMS -

GRVI – Green red vegetation index

LCI – Leaf chlorophyll index

NDRE – Normalized difference in rededge

VIGR - Vegetation Index with ratio of green to red





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