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Herbarium Specimens

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ABSTRACT

Here we describe the standardised protocol used by the [Canadian Airborne Biodiversity Observatory](https://www.caboscience.org/) (CABO) to collect, press and store herbarium specimens. The goal of this protocol is to validate the identification of species that were identified during the vegetation surveys, for as many species as possible, but with the priority of the vegetation crew always remaining to complete all the vegetation surveys.

EXTERNAL LINK

<http://www.caboscience.org/>

GUIDELINES

The aim of the collection and pressing of herbarium specimens is to validate the identification of species done during the vegetation surveys (see Open Vegetation Survey Protocol).

MATERIALS TEXT



Identification guides -

See Open Vegetation Survey Protocol →
Guidelines → Site Specific Information.





Gardening shovel -





Stake wire flags -


About 50 cm long, 3.5" x 2.5" pink or orange
vinyl flags on wire stakes


 Permanent marker -


 Ziploc bags -

 Ice packs -

 Cooler -

 Plant press and newspaper -

 CAT S41 fieldwork cellphone - [🔗](#)

 Trimble Catalyst GPS, NTRIP precision subscription -

1 Select a plant specimen to be collected outside the plots.



The species has to be identified in at least one of the vegetation surveys. One herbarium specimen per species is sufficient. Collect enough specimens to fill a newspaper page if the specimens are small.

Collect herbarium specimens for as many surveyed species as possible, per site, but the priority of the vegetation crew always remains to complete all of the vegetation surveys.

Also follow this procedure to collect samples of unknown plants.

2 Create the plant record in *Fulcrum*.

Permanent marker -



Stake wire flags - [link](#)

About 50 cm long, 3.5" x 2.5" pink or orange vinyl flags on wire stakes



Identification guides -

See Open Vegetation Survey Protocol → Guidelines → Site Specific Information.



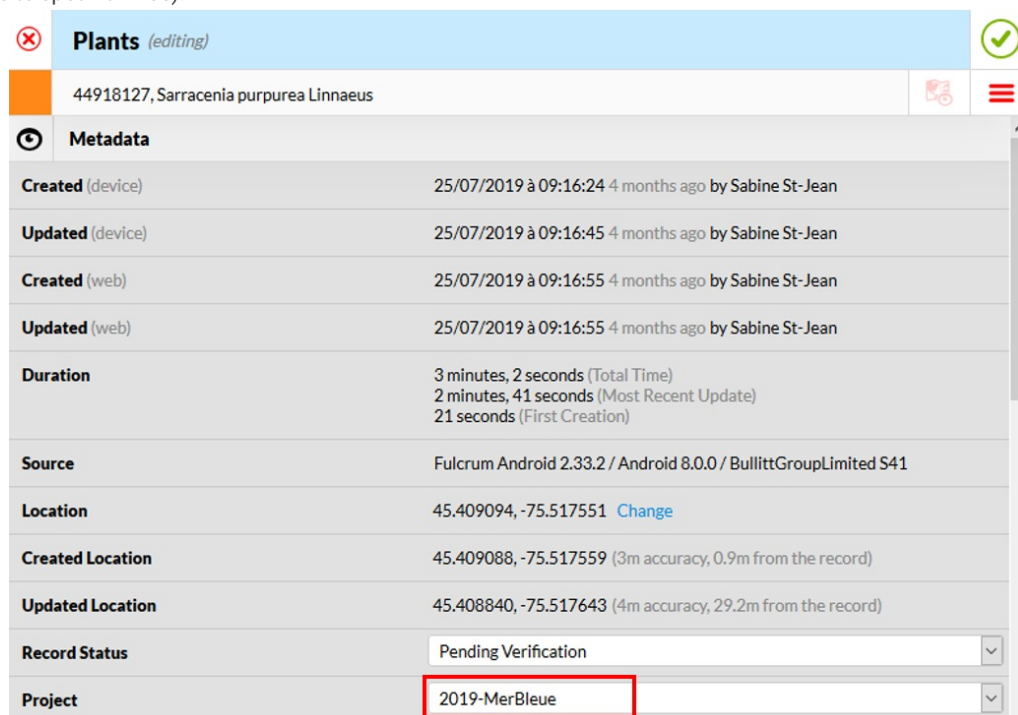
CAT S41 fieldwork cellphone - [link](#)



Trimble Catalyst GPS, NTRIP precision subscription

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- 2.1 In *Fulcrum*, under Plants → Metadata, select the appropriate project (see Open Vegetation Survey Protocol → Guidelines → Site Specific Infos).



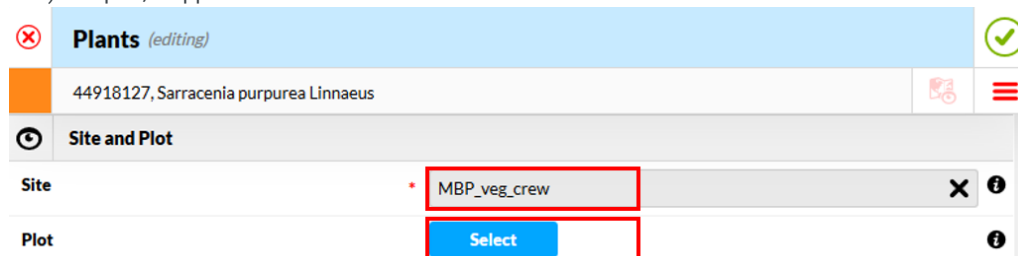
Plants (editing)

44918127, *Sarracenia purpurea* Linnaeus

Metadata

Created (device)	25/07/2019 à 09:16:24 4 months ago by Sabine St-Jean
Updated (device)	25/07/2019 à 09:16:45 4 months ago by Sabine St-Jean
Created (web)	25/07/2019 à 09:16:55 4 months ago by Sabine St-Jean
Updated (web)	25/07/2019 à 09:16:55 4 months ago by Sabine St-Jean
Duration	3 minutes, 2 seconds (Total Time) 2 minutes, 41 seconds (Most Recent Update) 21 seconds (First Creation)
Source	Fulcrum Android 2.33.2 / Android 8.0.0 / BullittGroupLimited S41
Location	45.409094, -75.517551 Change
Created Location	45.409088, -75.517559 (3m accuracy, 0.9m from the record)
Updated Location	45.408840, -75.517643 (4m accuracy, 29.2m from the record)
Record Status	Pending Verification
Project	2019-MerBleue

- 2.2 Under Plants → Site and Plot, select the appropriate site (see Open Vegetation Survey Protocol → Guidelines → Site Specific Infos) and plot, if applicable.



Plants (editing)

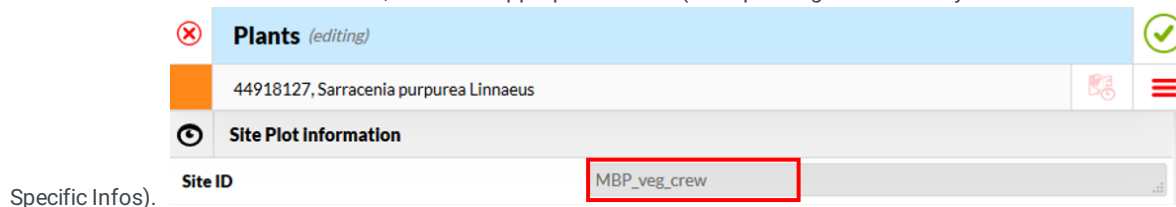
44918127, *Sarracenia purpurea* Linnaeus

Site and Plot

Site * MBP_veg_crew

Plot Select

- 2.3 Under Plants → Site Plot Information, select the appropriate site ID (see Open Vegetation Survey Protocol → Guidelines → Site



Plants (editing)

44918127, *Sarracenia purpurea* Linnaeus

Site Plot Information

Site ID MBP_veg_crew

2.4 Under Plants → Plant, answer to Plant Tagged?.

- Answer Yes if the precise georeferencing of the plant is not done right away (for example, if the Trimble GPS is not available). Mark the location of the plant specimen using a stake with labelled flagging tape (format: [InitialLastNameResearcher]-[SpeciesLatinName]). In *Fulcrum*, enter the Tag ID (same format) and select the tag type (stake at plant base).
- Answer No if the precise georeferencing of the plant is done right away. In that case, no stake has to be installed.

If desired, take a photo of the plant and upload it next to Plant Photos.

Plants (editing)

44918127, BY geo, Sarracenia purpurea Linnaeus

Plant

Plant ID: 44918127

Plant Tagged?:

Tag ID: BY geo

Tag Type: stake at plant base

Tag Remarks:

Plant Photos:

Close-Up Photos:

Plant Remarks:

2.5 Under Plants → Plant First Occurrence, enter the name of the observer and the date of the observation.

The default entries are the name of the person logged into *Fulcrum* and the current date.

✕
Plants (editing)
✓

44918127, Sarracenia purpurea Linnaeus
✕
☰

⌂
Plant First Occurrence

First Observed By

✕
Alizée Girard
ⓘ

Anna Crofts
 Antoine Mathieu
 Alexandra Massey
 Charlotte Taillefer
 Clément Robert-Bigras
 Deep Inamdar
 Etienne Laliberté
 Florence Blanchard
 Guillaume Tougas
 Isabelle Gareau
 Kathryn Elmer
 Madeleine Trickey-Massé
 Margaret Kalacksa
 Maria Juliana Pardo Losada
 Mark Vellend
 Myriam Cloutier
 Oliver Lucanus
 Pablo Arroyo
 Paul Hacker
 Rime Néron
 Rosalie Beauchamp-Rigoux
Sabine St-Jean
 Sabrina Demers-Ihibeault
 Xavier Guilbeault-Mayers
 Other

Date First Observed

First Occurrence Remarks

✕
25 / 07 / 2019
ⓘ

2.6 Under Plants → Location, use the Trimble connected to your cellphone (or your cellphone GPS if the Trimble GPS is not available right away) to georeference the plant by clicking on Update Location with GPS - coordinates will automatically be imported to the Latitude and Longitude fields.

⌂
Location

Latitude (degrees)	48,807631
Longitude (degrees)	-123,6320338
Horizontal Accuracy (m)	0,02
Altitude (m)	41,54
Vertical Accuracy (m)	
Current GPS Information	
Your GPS is not accessible. No Location Available	
Update Location with GPS	<div style="border: 1px solid #f00; padding: 2px 10px; color: #007bff;">Update Location with GPS</div>



2.7 Under Plants → Taxon, select the species of the plant.

✖

Plants *(editing)*

✔

44918127, Sarracenia purpurea Linnaeus



🔍

Taxon

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Taxon Checklist

*

VASCAN

▼

ℹ

VASCAN Taxon

*

Sarracenia purpurea Linnaeus

✕

ℹ

- 2.8 Under Plants → Taxonomic Identification, indicate the name of the person identifying the plant as well as the date of the plant identification and the followed identification protocol.



The default entries are the name of the person logged into *Fulcrum* and the current date.

✕
Plants *(editing)*
✓

44918127, Sarracenia purpurea Linnaeus
🔍
☰

🕒
Taxonomic Identification
⬆

Identified By
*

Alizée Girard
Anna Crofts
Antoine Mathieu
Alexandra Massey
Charlotte Taillefer
Clément Robert-Bigras
Deep Inamdar
Etienne Laliberté
Florence Blanchard
Guillaume Tougas
Isabelle Gareau
Kathryn Elmer
Madeleine Trickey-Massé
Margaret Kalacksa
Maria Juliana Pardo Losada
Mark Vellend
Myriam Cloutier
Oliver Lucanus
Pablo Arroyo
Paul Hacker
Rime Néron
Rosalie Beauchamp-Rioux
Sabine St-Jean
Sabrina Demers-Thibault
Xavier Guilbeault-Mayers
Other

🔍

Date Identified
*

25 / 07 / 2019

🔍
🔍

Identification Protocol
*

botanical knowledge only
field guide, flora or other published source
comparison with herbarium specimen
Other

🔍

Identification Qualifier🔍

Identification Remarks🔍

Identification Audio Remarks

Select File

🔍

2.9



Plants *(editing)*



Save your record.

44918127, Sarracenia purpurea Linnaeus



- 3 Collect the plant specimen with its roots and store it in a Ziploc bag labelled with the species latin name, the plant ID and the date. Remove the tag once the specimen has been collected.



Gardening shovel -



Ziploc bags -



Permanent marker -

- 4 Store the specimen in a cool environment between collection and pressing.



Ice packs -



Cooler -

Specimen Pressing

- 5 Press the collected plant specimens. Label the newspaper with the site and date of collection, the name of the species, and the plant ID. No need to mount the specimens.



Plant press and newspaper -



Follow the guidelines indicated here: https://www.herbier.ulaval.ca/en/a_propos/confectionner_un_herbier/.

- 6 Create an entry for each herbarium specimen in *Fulcrum* under Pressed Specimens.
- 6.1 Under Metadata → Project, select the appropriate project; under Site and Plant → Plant, select the appropriate plant.

✖ **Pressed Specimens** *(editing)*
✔

46236888, Sarracenia purpurea Linnaeus
🔍 ☰

🕒 **Metadata**

Created (device)	09/08/2019 à 15:35:46 4 months ago by Sabine St-Jean
Updated (device)	09/08/2019 à 15:37:31 4 months ago by Sabine St-Jean
Created (web)	09/08/2019 à 15:38:02 4 months ago by Sabine St-Jean
Updated (web)	09/08/2019 à 15:38:02 4 months ago by Sabine St-Jean
Duration	1 minute, 33 seconds (First Creation)
Source	Fulcrum Android 2.33.3 / Android 8.0.0 / BullittGroupLimited S41
Location	45.398002, -71.915123 (12m accuracy) Change
Created Location	45.398002, -71.915123 (12m accuracy, 0.0m from the record)
Updated Location	45.397957, -71.915076 (3m accuracy, 6.2m from the record)
Record Status	Pending Verification
Project	2019-MerBleue

🕒 **Site and Plant**

Plant	44918127, Sarracenia purpurea Linnaeus	✖ ⓘ
Plant ID	44918127	



6.2 Under Collection Event, select the collector's name and the date that the plant was collected.

✕

Pressed Specimens *(editing)*

✓

46236888, *Sarracenia purpurea* Linnaeus



⌕

Collection Event

^

Collected By

*

Alizée Girard

Anna Crofts

Antoine Mathieu

Alexandra Massey

Charlotte Taillefer

Clément Robert-Bigras

Deep Inamdar

Etienne Laliberté

Florence Blanchard

Guillaume Tougas

Isabelle Gareau

Kathryn Elmer

Madeleine Trickey-Massé

Margaret Kalacksa

Maria Juliana Pardo Losada

Mark Vellend

Myriam Cloutier

Oliver Lucanus

Pablo Arroyo

Paul Hacker

Rime Néron

Rosalie Beauchamp-Rioux

Sabine St-Jean

Sabrina Demers-Thibeault

Xavier Guilbeault-Mayers

Other

ⓘ

Date Collected

*

25 / 07 / 2019

✕ ⓘ

6.3 All other fields are optional.

Pressed Specimens (editing)

46236888, Sarracenia purpurea Linnaeus

Specimen

Specimen ID: 46236888

Specimen Barcode:

Specimen Remarks:

Deposited in Herbarium?

Habitat

Dominant Plant Species: 0 Items

Vegetation Type:

Vegetation Type Definitions: <http://cnvc-cnvc.ca/search.cfm>

Soil Moisture Class:

Habitat Remarks:

Audio Remarks:

Habitat Photos:

6.4

Pressed Specimens (editing)

46236888, Sarracenia purpurea Linnaeus

Save your record.

7 Bring the pressed specimens to Montréal's Botanical Garden in order for them to be mounted and stored at the Marie-Victorin Herbarium.



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