

Benefits and challenges of an iNaturalist-based workflow for field collection



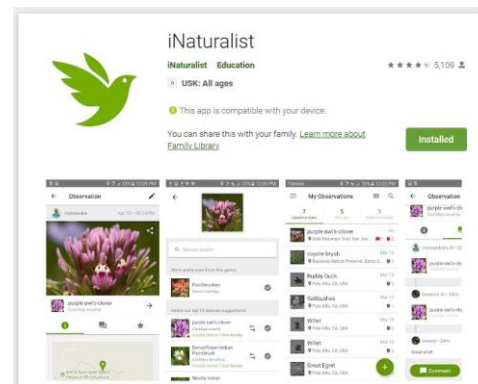
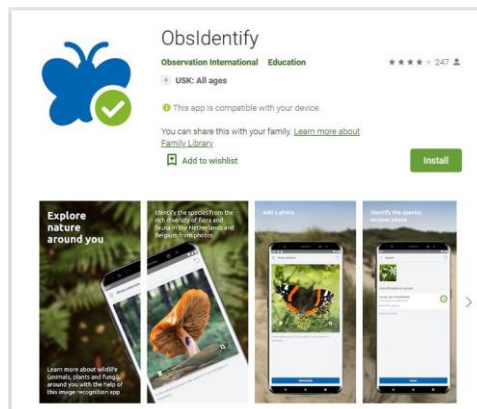
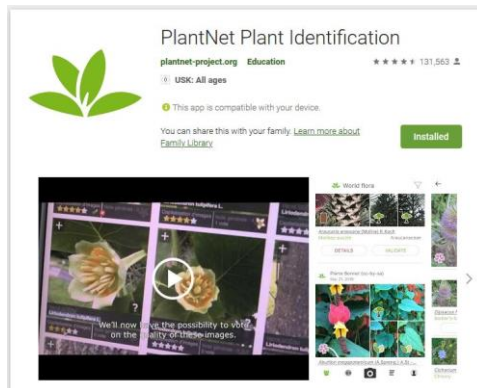
Bergen University Gardens

Michael Pirie michae.pirie@uib.no @PirieMike &
Heidi Lie Andersen Heidi.Andersen@uib.no @HeidiLieA
Bergen University Gardens, UiB, Norway

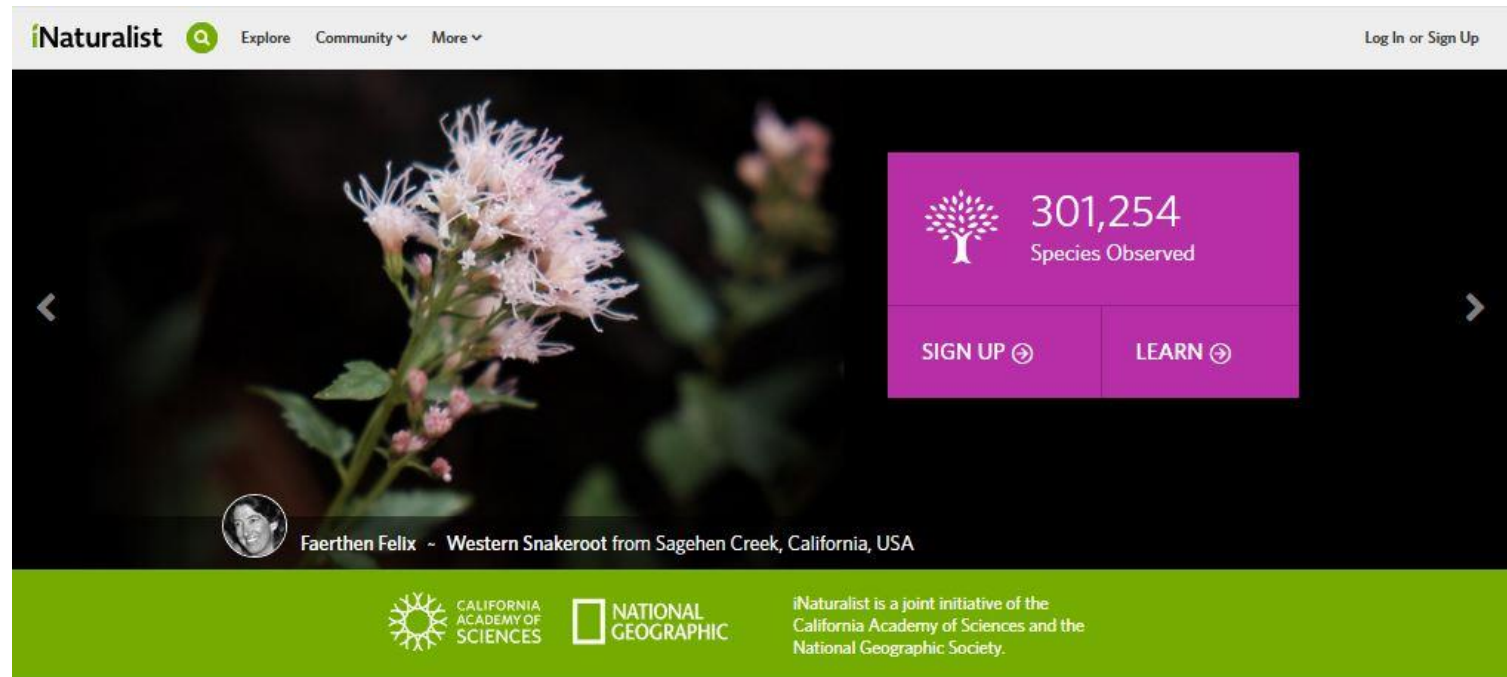


Presentation available at <https://doi.org/10.6084/m9.figshare.13187132>

Data entry – beyond the pencil/notepad and Excel spreadsheet



An example: iNaturalist <http://www.inaturalist.org>




How It Works



iNaturalist Explore Your Observations Community Identify More

Euonymus verrucosus (Warty-barked Spindle) Research Grade Edit



Observed: Sep 1, 2019 - 5:36 PM CEST Submitted: Sep 2, 2019 - 1:12 AM CEST

Map Satellite

Rastišće, Serbia

Be the first to have this observation!

Activity

mikepirie suggested an ID Improving 4mo

Euonymus verrucosus Warty-barked Spindle Compare

wojciech suggested an ID 3mo

Euonymus verrucosus Warty-barked Spindle

Comment Suggest an Identification

Leave a comment

Done Mark As Reviewed

Community Taxon

Euonymus verrucosus (Warty-barked Spindle)

Cumulative IDs: 2 of 2

0 2/3rds 2

Agree Compare About

Annotations

Attribute	Value	Agree	Disagree
Plant Phenology	Select -		
Sex	Select -		

Projects (3)

Add to a Project

- Bergen University Gardens
- Bergen University Gardens Serbia trip 2019
- Bergen IrisBG export Observation Fields

Tags (2)

Add Tag

Euonymus verrucosus HLA266

Observation Fields (3)

associatedCollectorsSymbiota:
Pirie, M.D.; Moe, B.; Golubovic, M.; Lazarević, P.; Zlatković, B.

recordNumberdwc:
266

recordedBySymbiota:
Andersen, H.L.

Choose a field

Names from
database;
collaborative
identification

Date/time,
geolocality
with place
name

Extendable
data entry
(DarwinCore)

✔ Data Quality Assessment ⓘ

Quality Grade: **Research**

The Data Quality Assessment is an evaluation of an observation's accuracy. Research Grade observations may be used by scientists for research. Cast your vote below:

Research Grade Qualification	Yes	No
Date specified	✔	
Location specified	✔	
Has Photos or Sounds	✔	
Has ID supported by two or more	✔	
Date is accurate	✔	
Location is accurate	✔	
Organism is wild	✔	
Evidence of organism	✔	
Recent evidence of an organism	✔	
Community Taxon at species level or lower	✔	
Based on the evidence, can the Community Taxon still be confirmed or improved? <div> <input type="checkbox"/> Yes <input type="checkbox"/> No, it's as good as it can be </div>		

Inappropriate content? [Flag As Inappropriate](#)



This observation is Research Grade! It can now be used for research and featured on other websites.

This observation is featured on 1 site



GBIF

Open science!

GBIF | 1 SEPTEMBER 2019

Euonymus verrucosus Scop.

Observed in Serbia

Plants / Tracheophyta / Magnoliopsida / Celastrales / Celastraceae / Euonymus

Species: *Euonymus verrucosus* Scop.

Location: Serbia

Based on record: Human observation

Dataset: Naturalist Research-grade Observations

Publisher: Naturalist.org

Reference: <https://www.naturalist.org/observations/11622046>

1

2

Euonymus verrucosus (Warty-barked Spindle) [Research Grade](#) [Edit](#)



[mikepirie](#)
1,181 observations

Observed: Sep 1, 2019 - 5:36 PM CEST
Submitted: Sep 2, 2019 - 1:12 AM CEST



Be the first to have this observation!

Activity

[mikepirie](#) suggested an ID [Improving](#) 4mo

Euonymus verrucosus
Warty-barked Spindle [Compare](#)

[wojciech](#) suggested an ID 3mo

Euonymus verrucosus
Warty-barked Spindle

[Comment](#) [Suggest an Identification](#)

Leave a comment

[Done](#) ☒ Mark As Reviewed

Community Taxon

Euonymus verrucosus (Warty-barked Spindle)
Cumulative IDs: 2 of 2

0 2/3rds 2

[Agree](#) [Compare](#) [About](#)

Annotations

Attribute	Value	Agree	Disagree
Plant Phenology	Select		
Sex	Select		

Projects (3)

Add to a Project

- Bergen University Gardens
- Bergen University Gardens Serbia trip 2019
- Bergen IrisBG export
[Observation Fields](#)

Tags (2)

Add Tag

[Euonymus verrucosus](#) [HLA266](#)

Observation Fields (3)

associatedCollectorsSymbiota:
Pirie, M.D.; Moe, B.; Golubovic, M.; Lazarević, P.; Zlatković, B.

recordNumberdwc:
266

recordedBySymbiota:
Andersen, H.L.

Choose a field

Add to
customizable
sub-projects


Projects: collections of observations, such as:

- Bergen University Gardens staff

iNaturalist Search

Explore Your Observations Community Identify More

Upload 0 0



Bergen University Gardens


About Members 7

Observations and collections made by staff members of the Bergen University Gardens, Norway.
[Read More >](#)


[Edit Project](#) [Project Journal](#)

Overview **6,394** OBSERVATIONS **2,269** SPECIES **507** IDENTIFIERS **7** OBSERVERS [Stats](#)


Recent Observations [View All](#)




Phyllodoce caerulea
Blue Mountain-Heath
1d



Achillea millefolium
Common Yarrow
1 3d









Succisa pratensis
Devil's-bit Scabious
1 3d









Solidago virgaurea
European Goldenrod
1 3d

Most Observations

	beritgehrke	1,641
	torsten	1,515
	mikepirie	1,411
	nannie	1,214
	evakleffgard	254
	heidilieandersen1	184







[View All](#) [View Yours](#)

Most Species

	beritgehrke	844
	torsten	802
	mikepirie	755
	nannie	619
	evakleffgard	186
	bjoernmoe	161

[View All](#) [View Yours](#)

Most Observed Species

	<i>Potentilla erecta</i>	67
	<i>Vaccinium vitis-idaea</i>	40
	<i>Calluna vulgaris</i>	37
	<i>Vaccinium myrtillus</i>	36
	<i>Potentilla argentea</i>	33
	<i>Erica tetralix</i>	30









[View All](#) [View Yours](#)

Projects: collections of observations, such as:

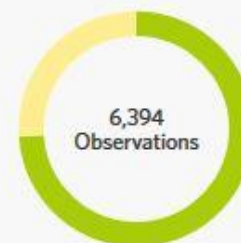
- Bergen University Gardens staff




Project Requirements

Observations in this project must meet the following criteria:

 Taxa	Kingdom Plantae (Plants)
 Location	Worldwide
 Users	mikepirie, bjoernmoe, nannie, torsten, heidilleandersen1, beritgehrke, evakleffelgard
 Projects	any
 Quality Grade	Research Grade, Needs ID
 Media Type	any
 Date	any
 Establishment	any

Stats



-  Research Grade
-  Needs ID
-  Casual

Journal


No journal posts yet. Check back soon!

Map of Observations



Projects: collections of observations, such as:

- Bergen University Gardens staff
- Field trips, research projects, local initiatives («Bioblitz»)



Bergen University Gardens Serbia trip 2019

AUG 25, 2019 - SEP 3, 2019

About Members 5

Observations and collections made during a field excursion to Western and Eastern Serbia, August/September 2019. A group from the Bergen University Gardens: Heidi Lie Andersen; Michael Pirie; Bjørn Moe; Mladen Golubovic were joined by Predrag Lazarević (coordinator of research at the Institute of Botany and Botanical

[Read More >](#)

[Edit Project](#) NEWS

Overview

327
OBSERVATIONS

252
SPECIES


33
IDENTIFIERS

3
OBSERVERS


[Stats](#)


Recent Observations [→](#)

[View All](#)





Amelanchier ovalis
Snowy Mespilus

 1 4mo





Acanthus hungaricus

 4mo





Artemisia alba

 4mo



Selaginella helvetica
Swiss Clubmoss



 4mo




Most Observations

mikepirie 325

1st

	bjoernmoe	1
	heidilieandersen1	1



[View All](#) [View Yours](#)




Most Species

mikepirie 247

1st






	bjoernmoe	1
	heidilieandersen1	1

[View All](#) [View Yours](#)



Most Observed Species

Erica carnea 6












	<i>Pinus nigra</i>	4
	<i>Rosa pendulina</i>	4
	<i>Scabiosa columbaria</i>	3
	<i>Salvia glutinosa</i>	3
	<i>Campanula patula</i>	3

[View All](#) [View Yours](#)

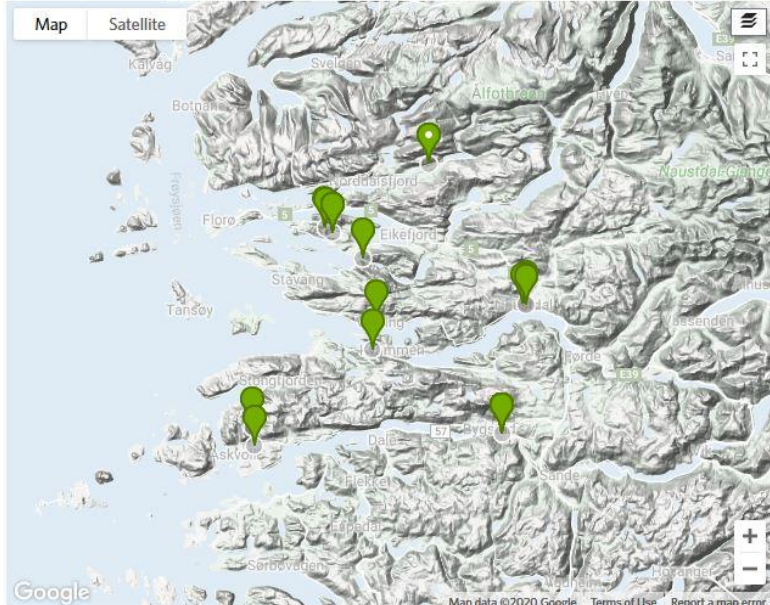
Projects: collections of observations, such as:

- Bergen University Gardens staff
- Field trips, research projects, local initiatives («Bioblitz»)
- Seed collections, living specimens, herbarium vouchers

Stats

Totals	Most Observations	Most Species	Most Observed Species
203 Observations »	 mikepirie 197 observations	 mikepirie 160 species	 Spring Heath 3 observations
172 Species »	 evakleffelgard 5 observations	 evakleffelgard 5 species	 Wild Strawberry 2 observations
3 People »	 bjoernmoe 1 observation	 bjoernmoe 1 species	 Spoonleaf Sundew 2 observations
			 Cotoneasters 2 observations
			 Wood Cow-Wheat 2 observations

Map
Satellite



Google
Map data ©2020 Google
Terms of Use
Report a map error

» Members
3 members
View All Members »

» Your Membership
197 observations

» Export Observations
Atom / CSV

» Usage stats

Project Curator Tools

» Find Suitable Observations

» Find Unsuitable Observations

» Export with Hidden Coordinates

» Filter by Curator Identification

» Identify Observations

» New Journal Post

» Invite people

Journal

Your project journal is a tool for communicating with project members. You can use it to make announcements, set priorities, or talk about your project's findings.

To get started, [create a post](#) »

About

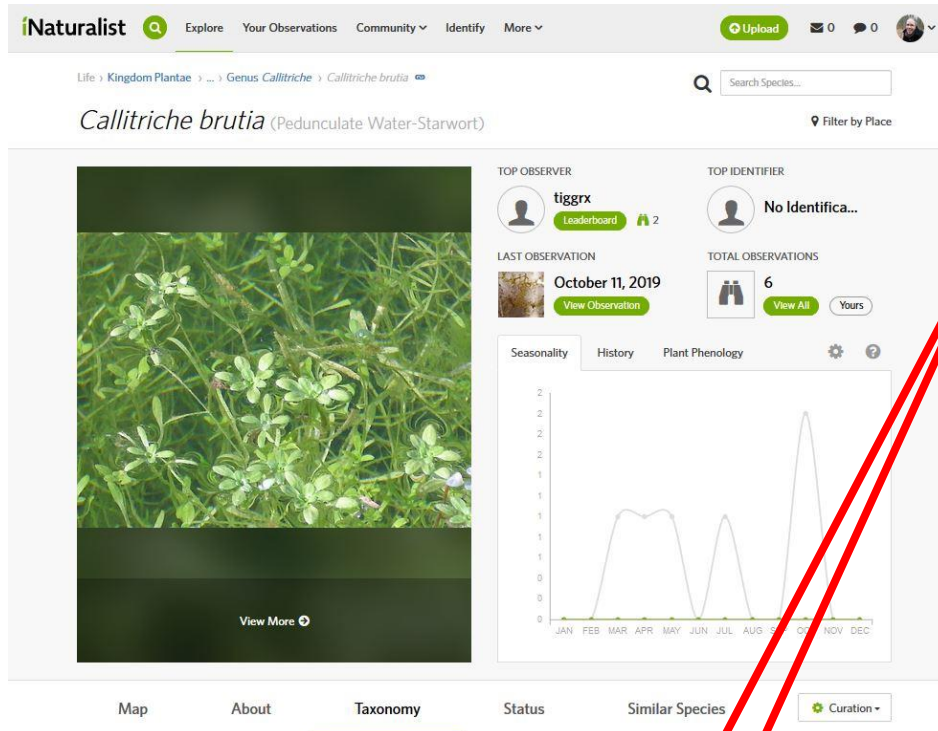
mikepirie created this project on September 03, 2019

Is this inappropriate, spam, or offensive? [Add a Flag](#)

Data
export

Challenges:

1. Trivial formatting/import issues
2. Non-trivial taxonomy conflicts/ambiguity



The screenshot shows the iNaturalist observation page for *Callitriche brutia* (Pedunculate Water-Starwort). The page includes a photo of the plant, a map, and a seasonality graph. The seasonality graph shows a peak in May and a larger peak in October. The 'Taxonomy' tab is selected, showing a hierarchical list of taxonomic ranks from Kingdom to Species. A red box highlights the 'Taxonomy Details' link in the 'Taxonomy' section.

Life > Kingdom Plantae > Genus *Callitriche* > *Callitriche brutia*

Callitriche brutia (Pedunculate Water-Starwort)

TOP OBSERVER: tigrx (Leaderboard)

TOP IDENTIFIER: No Identifica...

LAST OBSERVATION: October 11, 2019 (View Observation)

TOTAL OBSERVATIONS: 6 (View All, Yours)

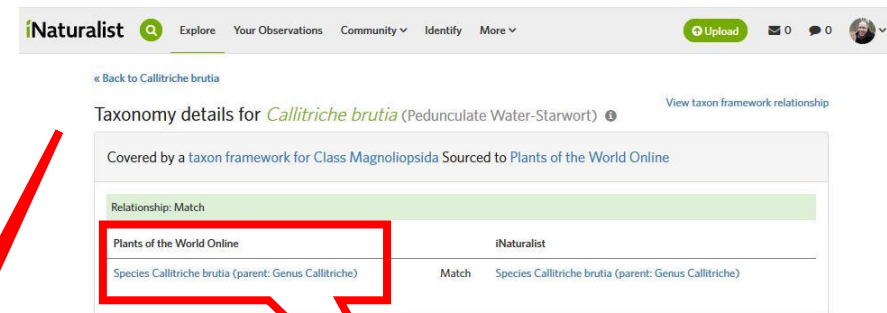
Seasonality: History, Plant Phenology

Map About Taxonomy Status Similar Species Curation

Taxonomy

- Kingdom Plantae (Plants)
- Phylum Tracheophyta (Vascular Plants)
- Subphylum Angiospermae (Flowering Plants)
- Class Magnoliopsida (Dicots)
- Order Lamiales (Mints, Plantains, Olives, and Allies)
- Family Plantaginaceae (Plantain Family)
- Tribe Callitricheae
- Genus *Callitriche* (Water Starwort)
- Callitriche brutia* (Pedunculate Water-Starwort)

Taxonomy Details



The screenshot shows the 'Taxonomy details for *Callitriche brutia* (Pedunculate Water-Starwort)'. It displays the relationship between the species and the taxon framework for Class Magnoliopsida. A red box highlights the 'Plants of the World Online' entry, which matches the iNaturalist entry.

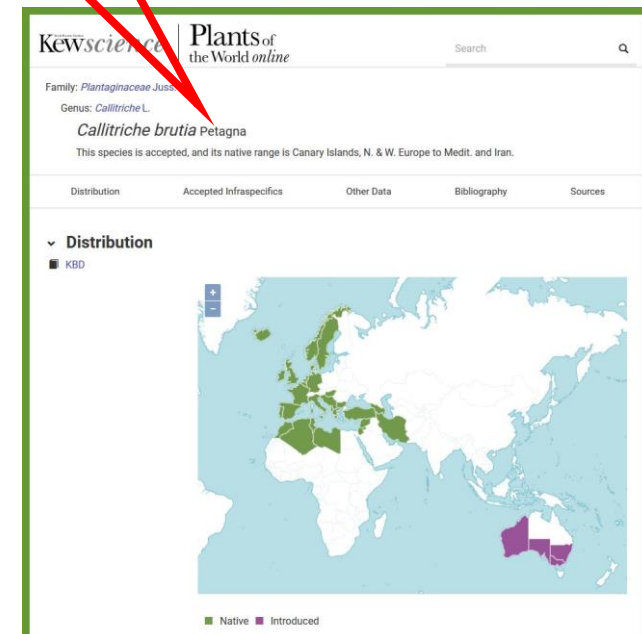
« Back to *Callitriche brutia*

Taxonomy details for *Callitriche brutia* (Pedunculate Water-Starwort)

Covered by a taxon framework for Class Magnoliopsida Sourced to Plants of the World Online

Relationship: Match

Plants of the World Online	iNaturalist
Species <i>Callitriche brutia</i> (parent: Genus <i>Callitriche</i>)	Match Species <i>Callitriche brutia</i> (parent: Genus <i>Callitriche</i>)



The screenshot shows the 'Plants of the World Online' distribution map for *Callitriche brutia*. The map displays the native range (green) and introduced range (purple) of the species. The native range is primarily in Europe and North Africa, while the introduced range is in Australia.

Kewscience | Plants of the World online

Family: Plantaginaceae Juss.
Genus: *Callitriche* L.
Callitriche brutia Petagna

This species is accepted, and its native range is Canary Islands, N. & W. Europe to Medit. and Iran.

Distribution Accepted Infraspecifics Other Data Bibliography Sources

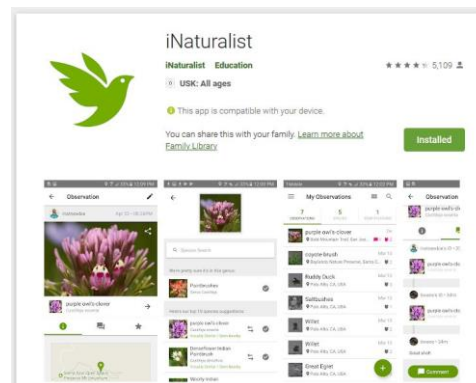
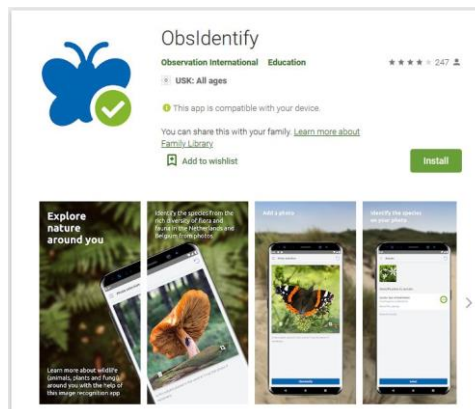
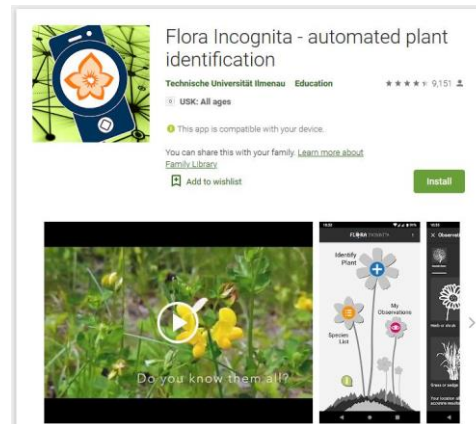
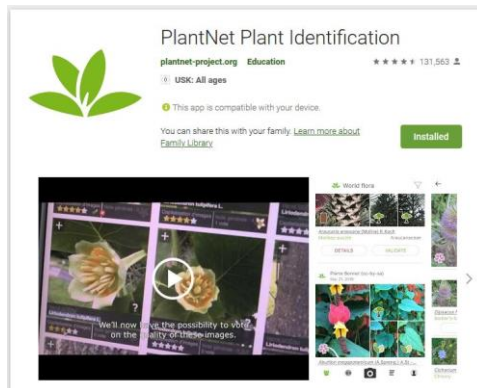
▼ Distribution

■ KBD

Native Introduced

Discussion points:

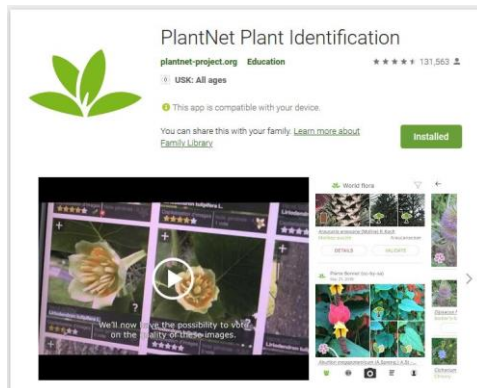
1. Pros and cons of different platforms?



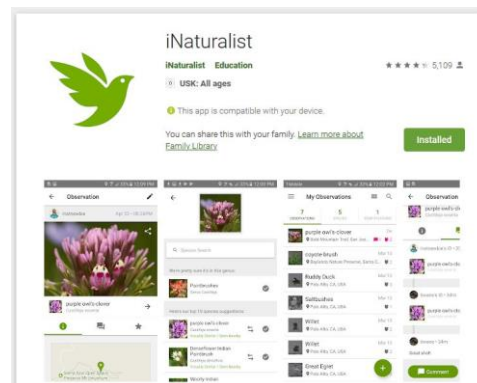
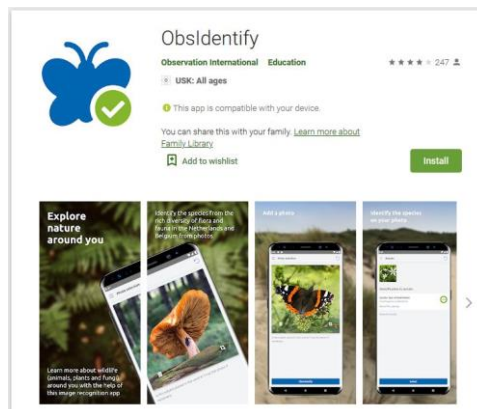
Heberling, J. M., & Isaac, B. L. 2018.
iNaturalist as a tool to expand the
research value of museum specimens.
Appl. Plant Sci., 6: e01193.
<https://doi.org/10.1002/aps3.1193>

Discussion points:

1. Pros and cons of different platforms?
2. Demand for IrisBG import tool(s)?

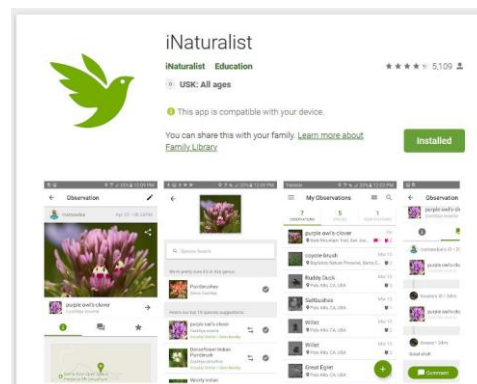
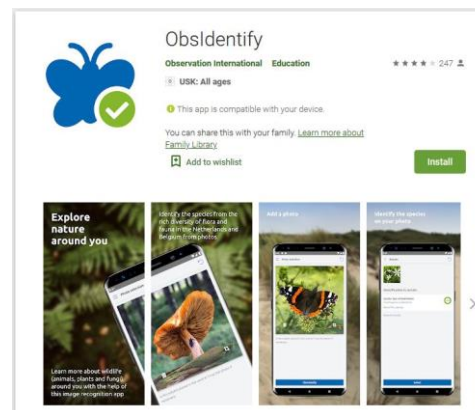
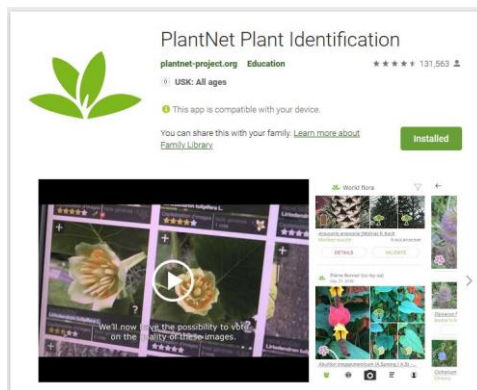


IrisBG - Collection Management



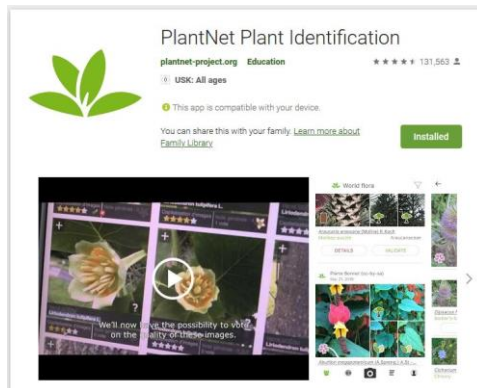
Discussion points:

1. Pros and cons of different platforms?
2. Demand for IrisBG import tool(s)?
3. Protocols for incorporating new names?



Discussion points:

1. Pros and cons of different platforms?
2. Demand for IrisBG import tool(s)?
3. Protocols for incorporating new names?
4. Need for a common taxonomy database?



 **IrisBG - Collection Management**


Catalogue of Life

