Web page designs and functionality:

Goals in making this:

User friendly, and intuitive for paleobotanical work.

Efficient - for user, and for development with limited duplication of processes.

Based on the data and structure already defined by the backend! (i.e. don't make new things!)

Operational Taxonomic Unit

Download pdf version

OTU name [taxonID]

OTU authority [nameAccordingTo]

Organ: leaf

Taxonomy: [use standardized format, DwCo; maybe only display what is entered]

| phylum | clade | class | order | clade |

| family | genus | subgenus | specificEpithet | authority |

| taxonRank ? |

Diagnosis:

Paragraph entry of diagnosis

Description: text view / ~~graph view~~   *Edit*

Schemas: **Manual of Leaf Architecture/tabs**
(different groupings/categories within a schema show as separate block of text; displaying categorical hierarchies defined by characters_of)
General Leaf Characters: Leaf shape Oblong; Leaf base Cuneate; Leaf Apex Acuminate

Venation: Primary venation Pinnate; Agrophic veins Absent; Secondary venation Brochidodromous; Tertiary venation Percurrent Opposite;

Tooth Characters: toothed; tooth shape CC/CV, CV/CV;

[SCROLL-ABLE]
Schema: **Quantitative Dicot Characters**

Schema: **Cuticle Characters**

Tabs for "types"

Exemplar image/plate
[coordinate overlay?]
Multiple images scroll? = carousel

Captions and ID at bottom

Holo-Exemplar specimen(s): link specimen record
Locality; geographic info
Geologic Age

Additional specimens: link, link, link

Temporal range: [summarized from collection]

Geographic Occurrence: [summarized from collections; plot occurrence map]

Synonymies: [pulls from relationships btwn OTUs]

Taxon history: (some versioning thing – maybe no links)

Specimens Added	2/02/2022	user R. Koll	[link to node/action]
Description Updated	2/01/2022	user D. Contreras	[link to node/action]
Description Updated	1/10/2022	user E. Currano	[link to node/action]
OTU Created	1/02/2022	user D. Contreras	[link to node/action]

Comment history: (new to old or old to new?) [taxonRemarks]   *Add Comment*

1/07/2022	user D. Contreras	Variation in basal vein number is not observed in the Hunky Dunky locality.
1/04/2022	user I. Miller	The number of basal veins may be variable from 3 to 5 in this morphotype. Need to determine if this variation is present within a single site, and consider merging the morphotypes.
1/02/2022	user D. Contreras	OTU similar to [morphotype DN47] from Denver Basin but differs in having 5 basal veins instead of 3.

SpecimenID

External Specimen Record: link record (iDigBio; Gbif); universal identifier; **catalogNumber**

Repository: museum/institution

Enterer: D. Contreras

Described by: E. Currano

Organ: leaf | Preservation: compression

Exemplar of: OTU D234

Location data: [use standardized format, DwCo; pulls from collections]

| country | stateProvince | county | locality |
| bed?/other specific | name | *lat* | *long* | Protected? |

Geological data: [DwCo format; dynamically pulls from collections]

group	formation	member	bed
interval_name	max_ma	min_ma
early interval	late interval	paleoenvironment

Taxonomic data: [OTU or pulls from linked record in databases; very basic level info]

| The most highly resolved (e.g. OTU), and parent taxon? | identifiedBy |

Description: text view / graph view   *Edit*

Schema: **Manual of Leaf Architecture**
(different groupings/categories within a schema show as separate block of text; displaying categorical hierarchies defined by characters_of)
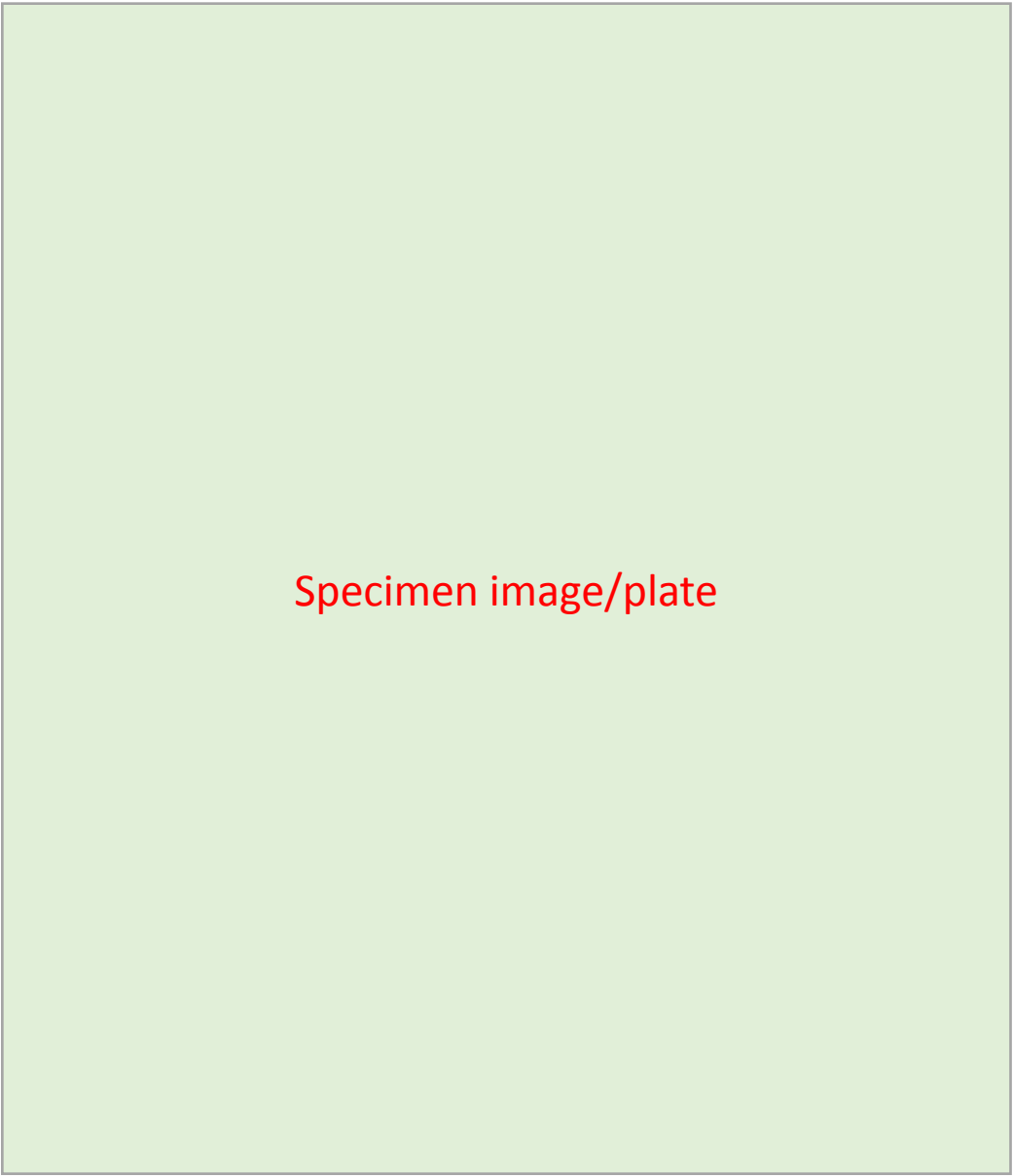*General Leaf Characters:* Leaf shape Oblong; Leaf base Cuneate; Leaf Apex Acuminate

Venation: Primary venation Pinnate; Agrophic veins Absent; Secondary venation Brochidodromous; Tertiary venation Percurrent Opposite;

Tooth Characters: toothed; tooth shape CC/CV, CV/CV;

Schema: **Quantitative Dicot Characters**

Schema: **Cuticle Characters**

Specimen image/plate

Specimen history:

Images Added	2/02/2022	user R. Koll	[link to node/action]
Description Updated	2/01/2022	user D. Contreras	[link to node/action]
Description Updated	1/10/2022	user E. Currano	[link to node/action]
Specimen Created	1/02/2022	user D. Contreras	[link to node/action]

Comment history: (new to old or old to new?) [????Remarks]   *Add Comment*

1/07/2022	user D. Contreras	It appears to be eucamptodromous basally to brochidodromous distally. Will update description.
1/04/P022	user I. Miller	I think the secondary venation is eucamptodromous, not brochidodromous. Please check.
1/02/2022	user D. Contreras	Specimen is missing apex.

Title

Organ | Entered

Entered By

Acknowledgements [allow to expand to fill to bottom of gray box and allow scrolling]

Reference

Published | DOI

Author(s) [allow scrolling]

Cited by collection(s) [allow to expand to fill to bottom of gray box and allow scrolling]

Purpose

Schema Graph Image
[allow enlarge and to move around image/right click to open in new window]

TOGGLE

Schema Text/Figure Summary

Schema history [this will require coding beyond field matching, allow scrolling]

Schema Added | 2/02/2022 | user R. Koll | [link to node/action]
Schema Updated | 1/02/2022 | user D. Contreras | [link to node/action]

Comment history [this will require coding beyond field matching, allow scrolling] (new to old or old to new?)

1/02/2022   user D. Contreras   Specimen is missing apex.

Functions to be added to page:
Add Comment, Update Schema

Home page mock:
(but make it pretty)

PBot Integrative Paleobotany Portal
The community gateway to fossil plant research and education.

Explore
fossil plants

Login to researcher
workbench

| About | How to use PBot | Resources | Go to Education & Outreach Hub |

Some kind of stat / conversation tracker

Notes:

? Add a "browse" feature, or something on home page that shows newly added taxa/images

Enter Public Search Portal	Log-In to MyWorkBench *register*	About	How to	Resources	Go to Education & Outreach Hub

Enter Public
Search Portal

Search for
Morphotype

Search for
Specimens

Search for
Schemas

Log-In to
MyWorkBench
register

Pulls up login box,
and option to
register

About

Mission
Overview
Personnel
Funding
How to
Cite
Contact Us
Etc.

How
to

Tutorials

Resources

Glossary
Character
Index
Best
practice
s for
photos
Other
databas
es

Go to Education &
Outreach Hub

Link to page that serves
as container for all
user-added outreach
content

Search page overview:

private and public search pages are same design

-reached two ways: from Explore on homepage; or from search function in workbench

---

Explore fossil plants

Search

OTUs | specimens schemas | collections

Search by name: If the user knows the name of what they are looking for, they can just type it here to quickly access the page for the OTU/specimen/schema/collection.

Display possible parameters to search by, based on what is clicked above. May need scrolling capabilities.

Quick Results viewed here
-data is clickable to make new tabs for further viewing.

e.g., results displayed here is a list of OTUs; then each OTU can be clicked to generate new tab displaying the full OTU page.

If this is selected, then this side of the screen is replaced with the equivalent of the "Choose Output Options" window in PBDB. Once we have the fields finalized, then we can work through what goes here for each type of search..

Show me more data! / Let me download data!

| About | How to use PBot | Resources | Go back to PBot Home Page |

Search page- OTU selected:

private and public search pages are same design

-reached two ways: from Explore on homepage; or from search function in workbench

Explore fossil plants

Search

OTUs | specimens

schemas | collections

Search OTU name:

- Search by Taxonomy
  - Taxon or Taxa to include (searches both taxonomic info & major clade)
- Search by Descriptive Data
  - Plant Organ
  - Schema Used to Describe
  - Character Instances
- Search by Time
  - Interval or Ma range
- Search by Location
  - depends on what we hold…
- Search by Geologic Context
  - Name(s) of Geologic Strata
- Search by Metadata
  - Collection name
  - Person
  - Reference
  - Group name(s)

Search Results

OTU Name (clickable link to bring up page in new tab/window)	Major clade	Plant organ	Age (one key field)	Location (one key field)	# Specimens	Entered by
Ellen's Head	Dicot	leaf	Miocene	Ethiopia	43	Ellen Currano
Dicot XXV	Dicot	leaf	Eocene	USA	1	Scott Wing
Metasequoia occidentalis	Conifer	leaf, cone, pollen	Cretaceous-Oligocene	Russia, USA, Canada	10	Claire Cleveland

Show me more data! / Let me download data!

About	How to use PBot	Resources	Go back to PBot Home Page

Search page - specimen selected:

private and public search pages are same design

-reached two ways: from Explore on homepage; or from search function in workbench

Explore fossil plants

Search

OTUs | specimens schemas | collections

Search specimen ID:
- Search by Taxonomy
  - OTU name
  - Taxon or Taxa to include (searches both taxonomic info & major clade)
- Search by Descriptive Data
  - Plant Organ
  - Schema Used to Describe
  - Character Instances
    - Restrict to specimen data?
    - Also searches the OTU?
- Search by Time
  - Interval or Ma range
- Search by Location
  - depends on what we hold…
- Search by Geologic Context
  - Name(s) of Geologic Strata
- Search by Metadata
  - Collection name
  - Person
  - Reference
  - Group name(s)

Search Results

Specimen Name (clickable link to bring up page in new tab/window)	OTU name	Major Clade	Plant organ	Age (one key field)	Location (one key field)	Entered by
MU7-45	Ellen's Head	Dicot		Miocene	Ethiopia	Ellen Currano
NMNH 47589	Dicot XXV	Dicot		Eocene	USA	Scott Wing
EPI.7482648	*Metasequoia occidentalis*	Conifer		Cretaceous	Russia	Claire Cleveland

Show me more data! / Let me download data!

About	How to use PBot	Resources	Go back to PBot Home Page

Search page - collection selected:
private and public search pages are same design

-reached two ways: from Explore on homepage; or from search function in workbench

Explore fossil plants

Search
OTUs | specimens schemas | collections

Search Collection name:

- Search by Taxonomy
    - OTU Name
    - Taxon or Taxa to include
    - Plant Organ
- Search by Time
    - Interval or Ma range
- Search by Location
    - depends on what we hold…
- Search by Geologic Context
    - Name(s) of Geologic Strata
- Search by Metadata
    - Person
    - Reference
    - Group name(s)

Search Results

Collection Name (clickable link to bring up page in new tab/window)	# OTUs	# specimens	Age (one key field)	Location (one key field)
MU7	15	80	Miocene	Ethiopia
NMNH 0321	4	7	Eocene	USA
DMNS 789	100	1009	Cretaceous	Russia

Show me more data! / Let me download data!

About	How to use PBot	Resources	Go back to PBot Home Page

Search page- schema selected:

private and public search pages are same design

-reached two ways: from Explore on homepage; or from search function in workbench

Explore fossil plants

Search

OTUs | specimens

schemas | collections

Search schema name:

- Search by Taxonomy
  - Taxon or Taxa to include
- Search by Plant Organ
- Search by Metadata
  - Person
  - Reference
  - Group name(s)
- Search by Character(s)

Search Results

Schema Name (clickable link to bring up page in new tab/window)	Reference	Plant Organ	Purpose
Manual of Leaf Architecture	Ellis et al. 2009	Leaves	Describe leaves of dicots and similar.
Ellen's awesome updates to MLA	Ellen's private schema	Leaves	Additional MLA characters Ellen thinks are useful!
Fern Schema	PBot Fern Schema Working group 2023	Foliage	Describe fern foliar material.

About	How to use PBot	Resources	Go back to PBot Home Page

Home page mock:
(but make it pretty)

PBot Integrative Paleobotany Portal
The community gateway to fossil plant research and education.

Explore
fossil plants

Login to researcher
workbench

About | How to use PBot | Resources | Go to Education & Outreach Hub

Some kind of stat / conversation tracker

Notes:

? Add a "browse" feature, or something on home page that shows newly added taxa/images

Enter Public Search Portal

Search for Morphotype

Search for Specimens

Search for Schemas

Log-In to MyWorkBench *register*

Pulls up login box, and option to register

About

Mission
Overview
Personnel
Funding
How to Cite
Contact Us
Etc.

How to

Tutorials

Resources

Glossary
Character Index
Best practices for photos
Other databases

Go to Education & Outreach Hub

Link to page that serves as container for all user-added outreach content

Workbench landing page mock:

-reached by logging in from main PBot page

Dori Contreras' Workbench

[logout] [help]

Toolbox:

Search
taxa | specimens | schemas

Enter OTUs

Enter specimens

Enter collections

Schema builder

Manage References

Manage my profile

My projects:

Woodbine Flora	Jose Creek Tuff	Crevasse Canyon
Some new conifers	Riley's Creek Alaska	Texas Permian conifer types

+ add new project group

About | How to use PBot | Resources | Go back to PBot Home Page

---

Toolbox actions not specific to projects

For these actions, does the form:
1) open in new tab
2) appear here in full window
3) appear here in partial window (action bar still visible)

Scrollable tile view of all your projects (i.e. "groups"); click to go work on that project

Project landing page:
-reached by clicking on project tile from Workbench home

| Return to workbench dashboard | logout | help |

Toolbox:

Search
taxa | specimens | schemas

Enter OTUs

Enter specimens

Enter collections

Schema builder

Manage References

Manage my profile

Woodbine Flora

manage project info

Project description:
Description of the Woodbine Group flora, Lewisville Formation, from the Dallas-Fort Worth metroplex. Includes multiple localities and micro- to megafossils vegetative and reproductive material.

Personnel:
Ellen Currano, Dori Contreras, Rebecca Koll, Claire Cleveland

Project Data Summary:

36 OTUs (*view list*)

187 specimens (*view list*)

10 collections (*view list*)

2 custom schemas (*view list*)

Last entry July 22, 2022

| About | How to use PBot | Resources | Go back to PBot Home Page |

Toolbox actions still appear here

Project data summary links generate a canned query to show a summary list of the specified data.

manage project info =
Links to form (similar/same as the "add project" form that allows for editing:
-project description
-personnel access
-project name
-any other metadata?

Project landing page:

-Viewing project data summary list for OTUs

| Return to workbench dashboard | logout | help |

Toolbox:

Search
taxa | specimens | schemas

Enter OTUs

Enter specimens

Enter collections

Schema builder

Manage References

Manage my profile

Woodbine Flora

manage project info

Back to project home

36 Operational Taxonomic Units:

Dicot	Ellen's Head	*view*
Dicot	D27a	*view*
Dicot	DMNH82	*view*
Conifer	Brachyphyllum 1	*view*
Monocot	Zingiber2	*view*

...

Last entry July 22, 2022

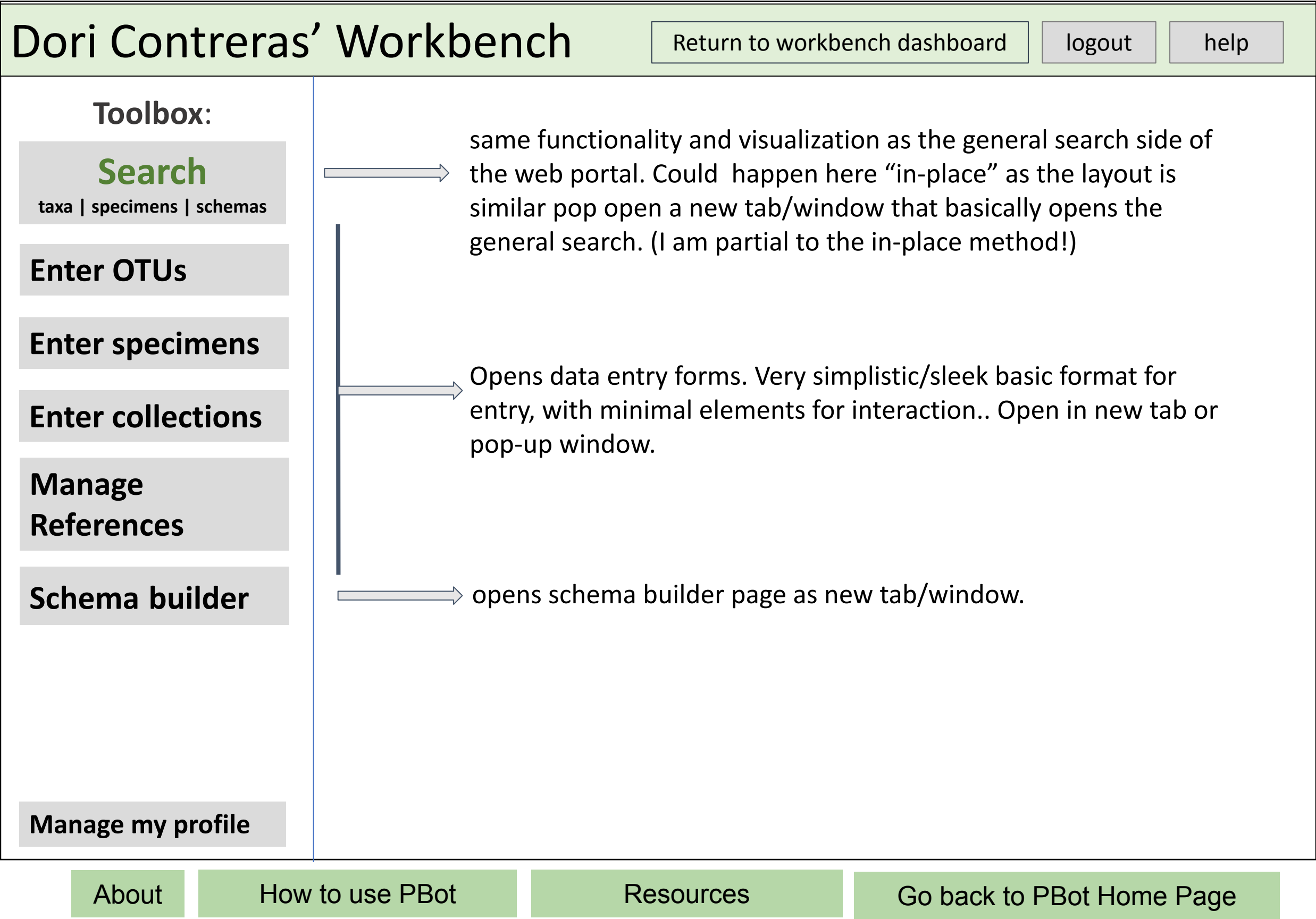| About | How to use PBot | Resources | Go back to PBot Home Page |

Links allow to easily reach OTUs/specimens/collections that are associated with a project. Allows for intuitive and easy editing and other actions on OTUs and Specimens within a project.

Page is scrollable when list is longer than screen

Workbench toolbox functions general explanation

Dori Contreras' Workbench | Return to workbench dashboard | logout | help

Toolbox:

Search
taxa | specimens | schemas

→ same functionality and visualization as the general search side of the web portal. Could happen here "in-place" as the layout is similar pop open a new tab/window that basically opens the general search. (I am partial to the in-place method!)

Enter OTUs

Enter specimens

Enter collections

→ Opens data entry forms. Very simplistic/sleek basic format for entry, with minimal elements for interaction.. Open in new tab or pop-up window.

Manage References

Schema builder

→ opens schema builder page as new tab/window.

Manage my profile

About | How to use PBot | Resources | Go back to PBot Home Page

"Enter comments": should this be a form button too, or will it be done from a button/function on the OTU or Specimen pages? (or other pages for things we allow comments on?)

Data entry forms:

OTU ID

Family

Genus

Species

Groups ▾

☐ Include synonyms

☐ Include holotype description

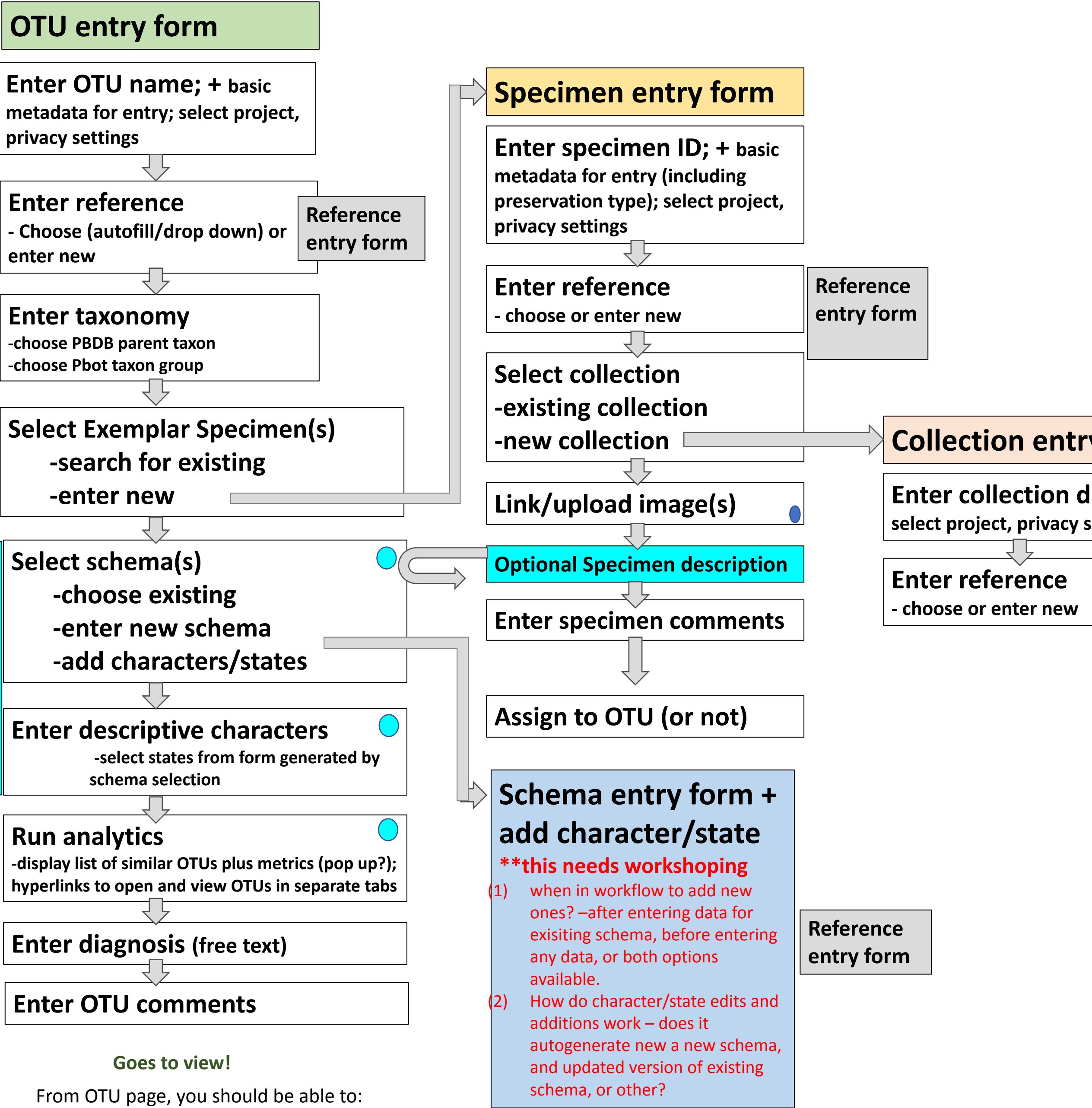☐ Include merged description

[SUBMIT]

Specimen ID

Name

Collection ▾

Groups ▾

☐ Include images

☐ Include descriptions

☐ Include OTUs

[SUBMIT]

Entry forms master flow

OTU entry form

Enter OTU name; + basic metadata for entry; select project, privacy settings

⬇

Enter reference
- Choose (autofill/drop down) or enter new

Reference entry form

⬇

Enter taxonomy
-choose PBDB parent taxon
-choose Pbot taxon group

⬇

Select Exemplar Specimen(s)
-search for existing
-enter new

⬇

Select schema(s)
-choose existing
-enter new schema
-add characters/states

⬇

Enter descriptive characters
-select states from form generated by schema selection

⬇

Run analytics
-display list of similar OTUs plus metrics (pop up?); hyperlinks to open and view OTUs in separate tabs

⬇

Enter diagnosis (free text)

⬇

Enter OTU comments

Goes to view!

From OTU page, you should be able to:
-add comments
-add more specimens
-propose "synonymies"

Specimen entry form

Enter specimen ID; + basic metadata for entry (including preservation type); select project, privacy settings

⬇

Enter reference
- choose or enter new

Reference entry form

⬇

Select collection
-existing collection
-new collection ➡ **Collection entr**

⬇

Link/upload image(s)

⬇

Optional Specimen description

⬇

Enter specimen comments

⬇

Assign to OTU (or not)

Collection entr

Enter collection d
select project, privacy s

⬇

Enter reference
- choose or enter new

Schema entry form + add character/state

**this needs workshoping
(1) when in workflow to add new ones? –after entering data for exisiting schema, before entering any data, or both options available.
(2) How do character/state edits and additions work – does it autogenerate new a new schema, and updated version of existing schema, or other?

Reference entry form

Title

Organ | Entered (date)

Entered By

Acknowledgements [allow to expand to fill to bottom of gray box and allow scrolling, character max?]

Purpose [allow scroll, character max?]

Submit

Remove

Associate reference:

Add reference | New reference | Remove

Associate Public/group:

Add group | New group | Remove

✓ Revisit Notes [scrollable]

Characters

Character of [allow select from schema and character groups assoc. w. this chema]

Name

Description

Add image assoc. | Submit

Remove

States

State of [allow select from characters and states associate w. this schema]

Name

Description

Add image assoc. ????? | Submit

Remove

Add Associate character refs and state refs????

Add Associate schema cited by collection(s) ????

Make sure associations with schema, character, state clear by position???

Add field for creating Character groups

Schema text
[updates as submit characters, states, and images/figures; allow scroll]

Functions to be added to page:
Add Comment

PBotID

About | How to use PBot | Resources | Go back to PBot Home Page

Static Pages with some function examples follow:

Operational Taxonomic Unit

Download pdf version

OTU name [taxonID]

OTU authority [nameAccordingTo]

Organ: leaf

Taxonomy: [use standardized format, DwCo; maybe only display what is entered]

| phylum | clade | class | order | clade |

| family | genus | subgenus | specificEpithet | authority |

| taxonRank ? |

Diagnosis:
Paragraph entry of diagnosis

Description: text view / ~~graph view~~   *Edit*

Schemas: **Manual of Leaf Architecture/tabs**
(different groupings/categories within a schema show as separate block of text; displaying categorical hierarchies defined by characters_of)
General Leaf Characters: Leaf shape Oblong; Leaf base Cuneate; Leaf Apex Acuminate

Venation: Primary venation Pinnate; Agrophic veins Absent; Secondary venation Brochidodromous; Tertiary venation Percurrent Opposite;

Tooth Characters: toothed; tooth shape CC/CV, CV/CV;

[SCROLL-ABLE]
Schema: **Quantitative Dicot Characters**

Schema: **Cuticle Characters**

Tabs for "types"

Exemplar image/plate
[coordinate overlay?]
Multiple images scroll? = carousel

Captions and ID at bottom

Holo-Exemplar specimen(s): link specimen record
Locality; geographic info
Geologic Age

Additional specimens: link, link, link

Temporal range: [summarized from collection]

Geographic Occurrence: [summarized from collections; plot occurrence map]

Synonymies: [pulls from relationships btwn OTUs]

Taxon history: (some versioning thing – maybe no links)

Specimens Added	2/02/2022	user R. Koll	[link to node/action]
Description Updated	2/01/2022	user D. Contreras	[link to node/action]
Description Updated	1/10/2022	user E. Currano	[link to node/action]
OTU Created	1/02/2022	user D. Contreras	[link to node/action]

Comment history: (new to old or old to new?) [taxonRemarks]   *Add Comment*

1/07/2022	user D. Contreras	Variation in basal vein number is not observed in the Hunky Dunky locality.
1/04/2022	user I. Miller	The number of basal veins may be variable from 3 to 5 in this morphotype. Need to determine if this variation is present within a single site, and consider merging the morphotypes.
1/02/2022	user D. Contreras	OTU similar to [morphotype DN47] from Denver Basin but differs in having 5 basal veins instead of 3.

OTU name [taxonID]

Taxonomy: [use standardized format, DwCo; maybe only display what is entered]

| phylum | clade | class | order | clade |

| family | genus | subgenus | specificEpithet |

| taxonRank ? |

Organ: leaf

Morphyotype Quality Index

OTU authority [nameAccordingTo]

Holo-Exemplar specimen(s): link specimen record
Locality; geographic info
Geologic Age

Diagnosis:
Paragraph entry of diagnosis

Description: Possible for user to select which schemas to include? Might not want to show all.

***Schema 1:* Schema name**
Own line for each? Paragraph with semicolons separating? So, Character 1: States;
Character 2: States; …
Character 1: States
Character 2: States
Character 3: States
….

***Schema 2:* Schema name**
Character 1: States
Character 2: States
Character 3: States
….

***Schema 3:* Schema name**

Character 1: States
Character 2: States
Character 3: States
….

Image 1
Autopopulate Image 1
User has option to select a different image?

Image 2
Autopopulate Image 2
User has option to select a different image?

SpecimenID

External Specimen Record: link record (iDigBio; Gbif); **universal identifier; catalogNumber**

Repository: museum/institution

Enterer: D. Contreras

Described by: E. Currano

Organ: leaf   Preservation: compression

Exemplar of: OTU D234

Location data: [use standardized format, DwCo; pulls from collections]

| country | stateProvince | county | locality |
| bed?/other specific | name | *lat* | *long* | Protected? |

Geological data: [DwCo format; dynamically pulls from collections]

group	formation	member	bed
interval_name	max_ma	min_ma
early interval	late interval	paleoenvironment

Taxonomic data: [OTU or pulls from linked record in databases; very basic level info]

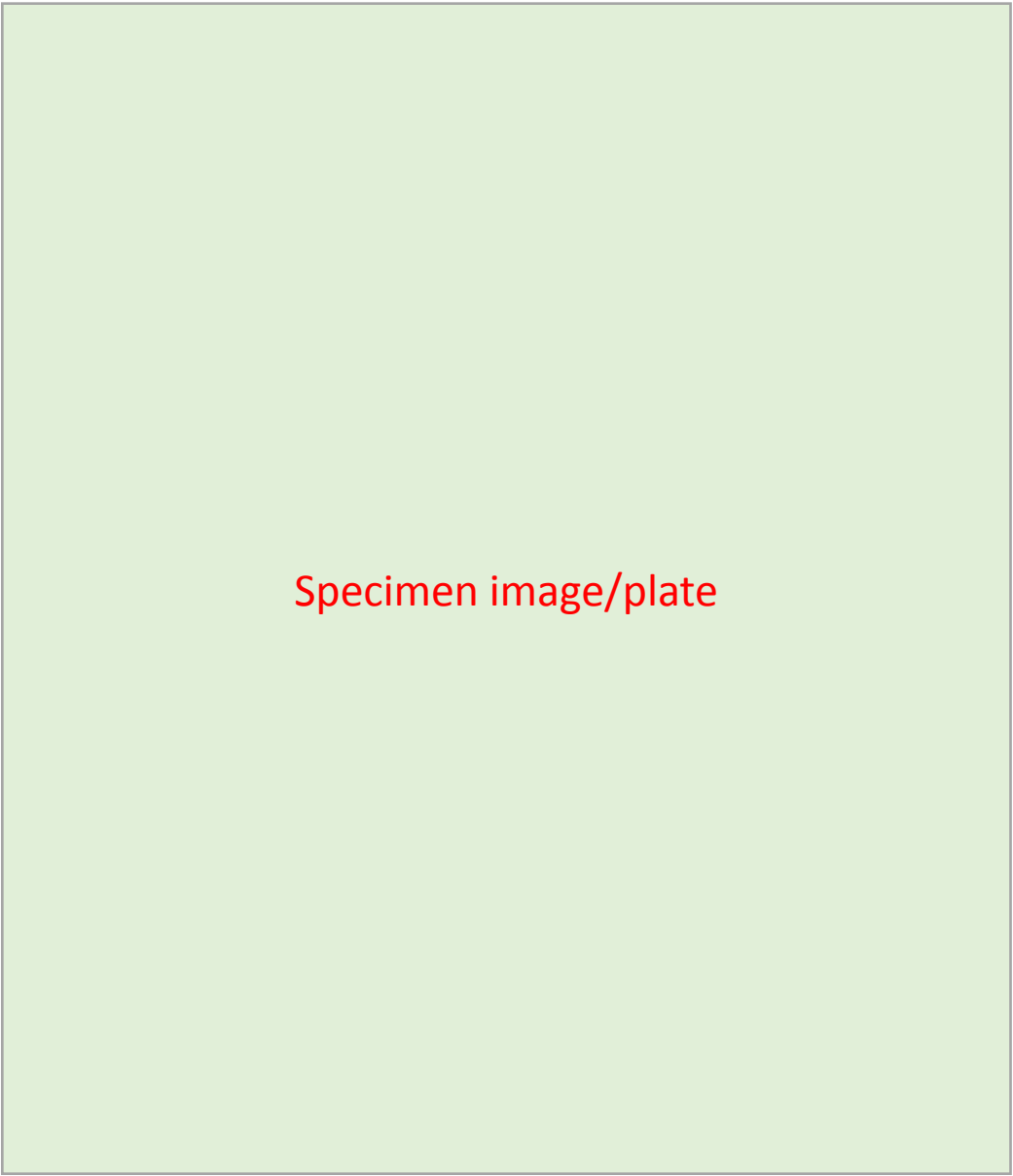| The most highly resolved (e.g. OTU), and parent taxon? | identifiedBy |

Description: text view / graph view   *Edit*

Schema: **Manual of Leaf Architecture**
(different groupings/categories within a schema show as separate block of text; displaying categorical hierarchies defined by characters_of)
General Leaf Characters: Leaf shape Oblong; Leaf base Cuneate; Leaf Apex Acuminate

Venation: Primary venation Pinnate; Agrophic veins Absent; Secondary venation Brochidodromous; Tertiary venation Percurrent Opposite;

Tooth Characters: toothed; tooth shape CC/CV, CV/CV;

Schema: **Quantitative Dicot Characters**

Schema: **Cuticle Characters**

Specimen image/plate

Specimen history:

Images Added	2/02/2022	user R. Koll	[link to node/action]
Description Updated	2/01/2022	user D. Contreras	[link to node/action]
Description Updated	1/10/2022	user E. Currano	[link to node/action]
Specimen Created	1/02/2022	user D. Contreras	[link to node/action]

Comment history: (new to old or old to new?) [????Remarks]   *Add Comment*

1/07/2022	user D. Contreras	It appears to be eucamptodromous basally to brochidodromous distally. Will update description.
1/04/P022	user I. Miller	I think the secondary venation is eucamptodromous, not brochidodromous. Please check.
1/02/2022	user D. Contreras	Specimen is missing apex.

SpecimenID

External Specimen Record: link record (iDigBio; Gbif); universal identifier; **catalogNumber**

Repository: museum/institution

Enterer: D. Contreras

Organ: leaf | Preservation: compression

Exemplar of: OTU D234

Location data: [use standardized format, DwCo; pulls from linked record in databases]

| continent | country | stateProvince | county |
| Location | Locality |

Geological data: [DwCo format; dynamically pulls the available data from linked record]

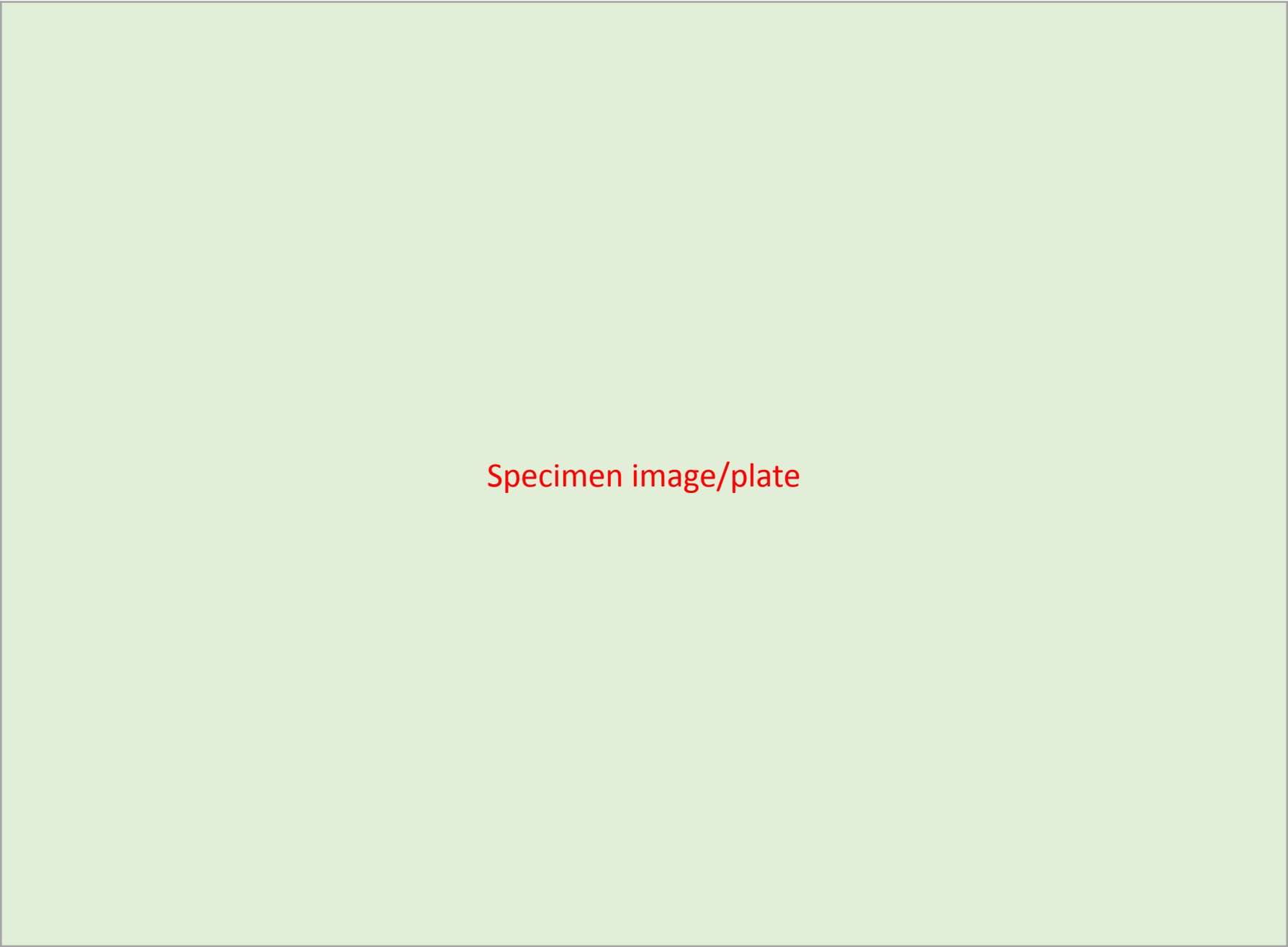| group | formation | member | bed |
| lowestBiostratigraphicZone | highestBiostratigraphicZone | LithostratigraphicTerms |

Taxonomic data: [OTU or pulls from linked record in databases; very basic level info]

| The most highly resolved (e.g. OTU), and parent taxon? | identifiedBy |

Specimen image/plate

Specimen history:

| Images Added | 2/02/2022 | user R. Koll | [link to node/action] |
| Specimen Created | 1/02/2022 | user D. Contreras | [link to node/action] |

Comment history: (new to old or old to new?) [????Remarks]   *Add Comment*

1/02/2022   user D. Contreras   Specimen is missing apex.