# **Unified Captive Reared Caterpillar Tracker**

## sdmay24-04

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# Problem:

Our client *currently tracks caterpillar data on paper* which is then *transferred by hand to digital spreadsheets*. It is a slow, difficult process. Our clients want a **more efficient way of collecting and analyzing data.** 

# Solution:

A **digital application** that handles all data **collection, storage, and reporting.** 

### Users:

 Members of the On Sacred Ground Organization engaging in captive propagation and rearing of the Island Marble Butterfly species, located on San Juan island.

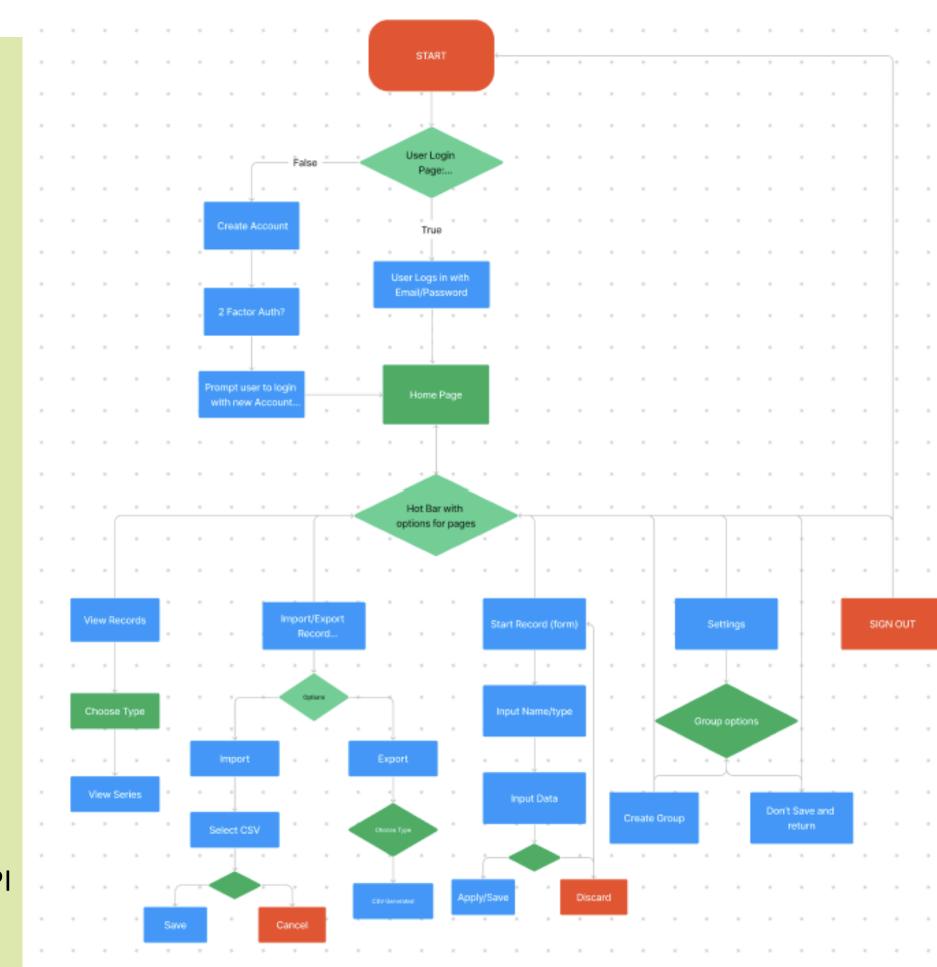
### Uses:

- Complete and file records relating to chrysalids and caterpillars
- Complete required check ups to chrysalids/caterpillars
- Importing/exporting csv files for data manipulation in excel sheets
- View historical data of previous records/checks for current user and their group



### Functional:

- Application should be usable on both mobile and desktop.
- Gather data automatically whenever possible (APIs)



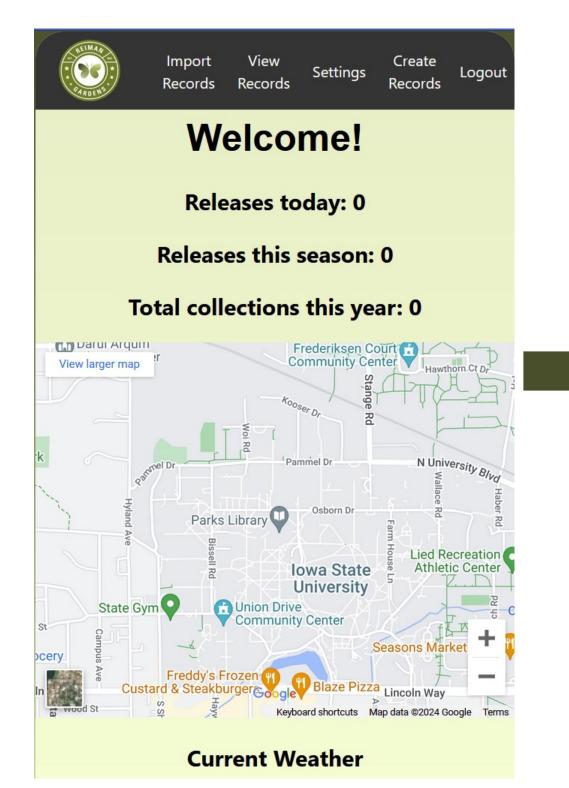


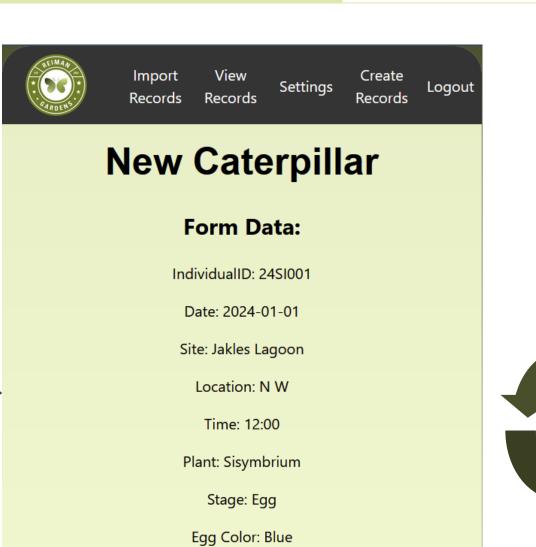
- Faster than hand-tracked data (Excel sheets, paper documents, etc.)
- Must be able to scale well with large amounts of data Nonfunctional:
- Intuitive UI
- Gamified program that leaves users feeling rewarded for contributing data.
- Entirety of service must be relatively cheap (<\$30 Monthly).
- Text should be minimal and accessible for all users.

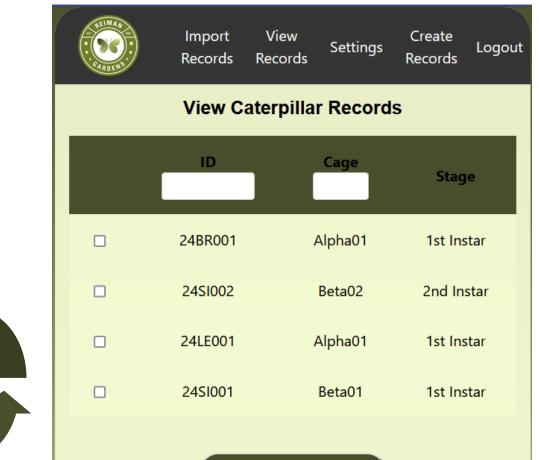
### Standards:

ISO/IEC/IEEE 23026:2015: focuses on system engineering and management requirements for the life cycle of websites

ISO/TS 23029:2020: defines the framework, function, and protocols for an API ecosystem.





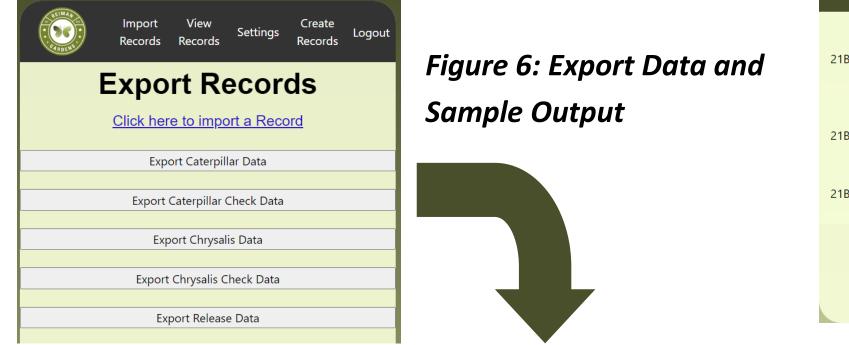




#### Figure 1: Home Page

(DO NOT TOUCH) Serial ID		Host plant	Specimen Number	Location Collected	Date Collected
21BR001	21	BR	001	South Bea	4/30/2021
21BR002	21	BR	002	South Bea	4/30/2021
21BR003	21	BR	003	South Bea	4/30/2021
21BR004	21	BR	004	South Bea	4/30/2021
21BR005	21	BR	005	Old Road E	5/4/2021
21BR006	21	BR	006	Old Road E	5/4/2021

#### Figure 5: Sample Data and Import Records



Individual ID	Created By	Created On	Updated On	Date Found	Location Found	Time Foun	Host Plant
24BR003	mgradle@iastate.edu	2024-04-23T21:52:14.055Z	2024-04-23T21:52:14.055Z	4/23/2024		16:51	Brassica



#### Figure 2: New Record Creation

THE REPORT	Rec Im	por	view lecords Sett	ords	Logout		
	Clic		<u>to export a l</u> elect a File				
Table Preview							
(DO NOT TOUCH) Serial ID	Year	Host plant	Specimen Number	Location Collected	Date Collected		
21BR001	21	BR	001	South Beach	4/30/202		
21BR002	21	BR	002	South Beach	4/30/202		
21BR003	21	BR	003	South Beach	4/30/202		
	Create ir	nto Record	i	Clear Table			



#### Figure 3: View Records

# **Technical Details**

- Login Security: AWS Cognito
- Programming Languages: NodeJS, ReactJS, HTML and CSS.
- Backend and Data Storage Solution: AWS Amplify, Cognito, S3, Route53

## Testing

- User testing by the On Sacred Ground organization lab members
- Iterative process of receiving user feedback and pushing updates
- Popups to inform users of system errors