



# DiversityNaviKey

Entwicklung

Stand 04/2020

Ariane Grunz

# DiversityNaviKey – PWA

- **Progressive Web App (PWA)**
  - Verwendung Standard Webtechnologien
    - HTML5, CSS3, JavaScript
  - Browserbasierte App – Plattformunabhängigkeit
  - Responsive UI für Mobile, Tablet, Desktop
  - Offline – Verfügbarkeit: Service Worker, IndexedDB
  - Sicherheit: HTTPS
  - Installierbarkeit ohne App Store

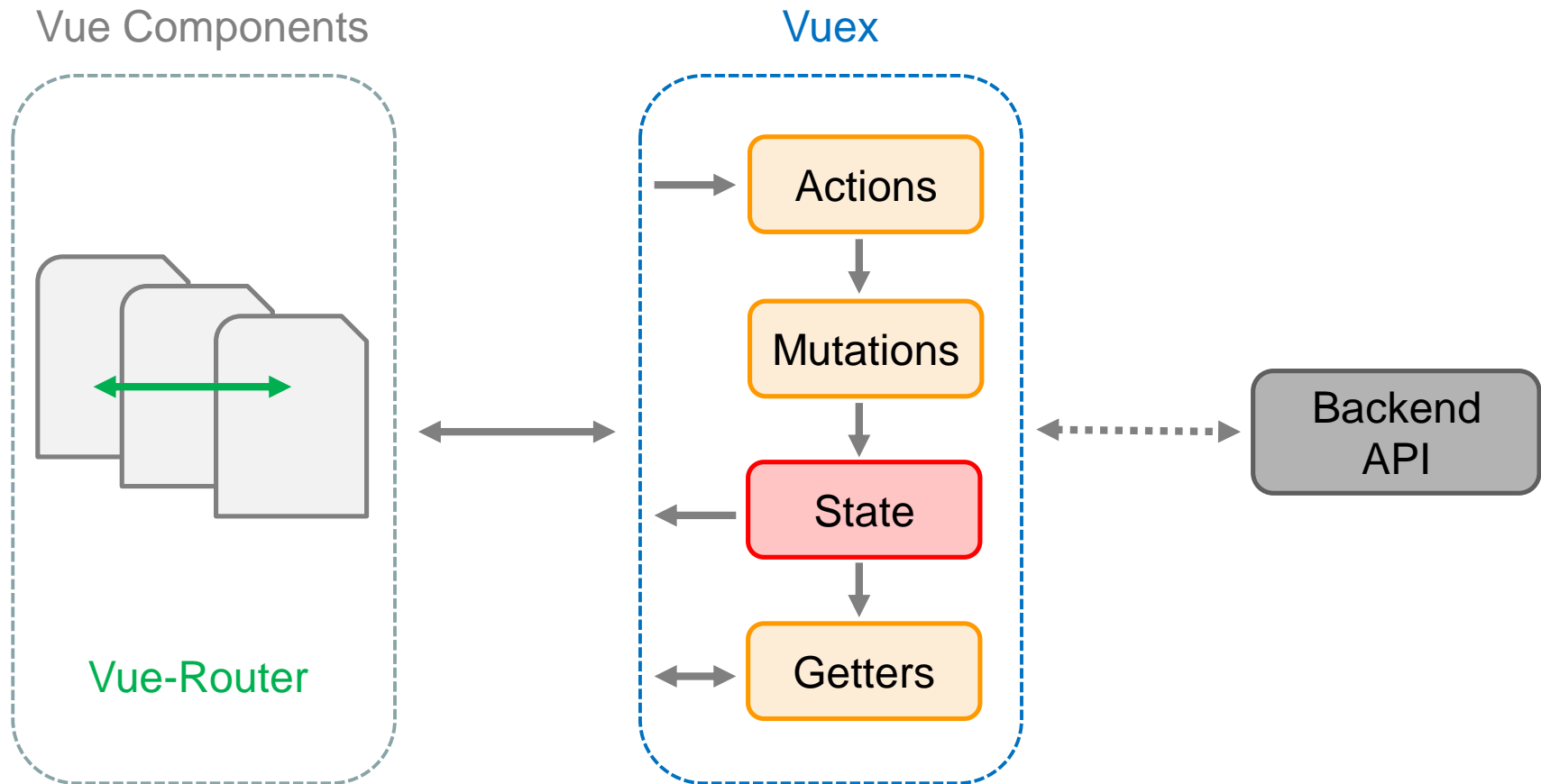
# Webframework – VUE.JS

- JavaScript – Webframework für Single Page Webanwendungen (SPA)
    - Einzelnes HTML Dokument mit dynamischen Inhalten
    - Rich Client = verstärkte clientseitige Ausführung
- ⇒ Offline – Unterstützung

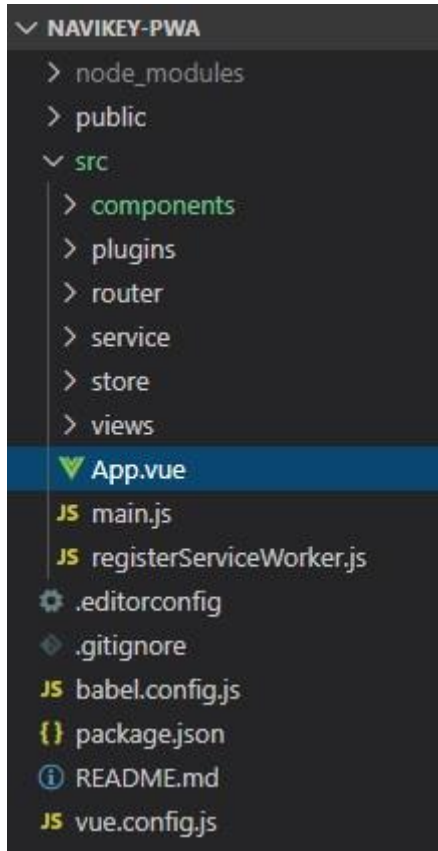
# Webframework – VUE.JS

- Schlankes Grundgerüst *Vue Core* + Erweiterungen
  - *Vuetify.js*: Material Design Component Framework → UI
  - *Vue-router.js*: Router zw. Komponenten
  - *Vuex.js*: State Management Library → zentrale Datenhaltung (reaktiv)

# Vue Plugins



# DiversityNaviKey – Vue Architektur

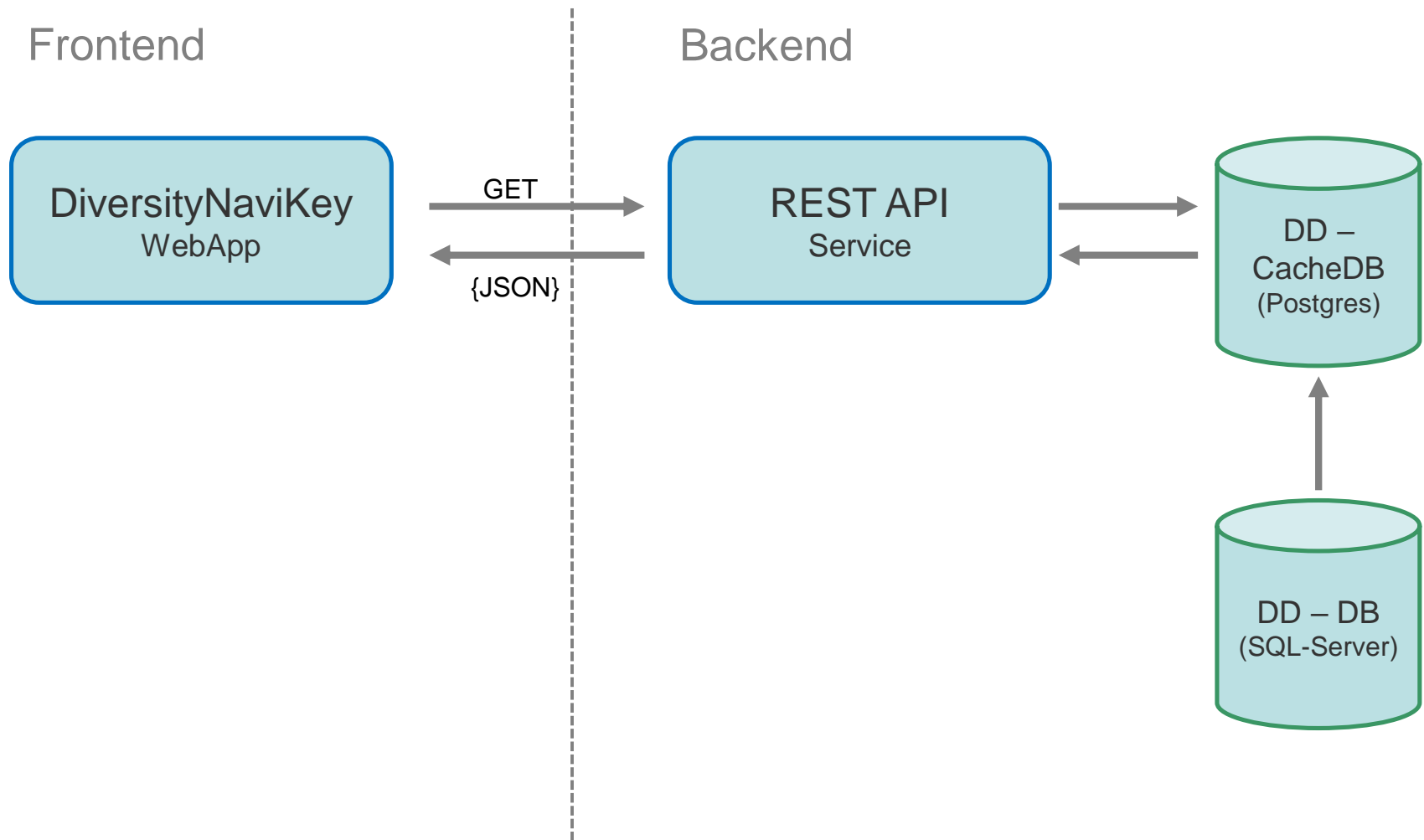


```
App.vue x  NavkeyHome.vue  InfoPanel.vue
src > App.vue > {} "App.vue"
1  <template>
2    <v-app>
3      <navikey-toolbar/>
4      <v-content>
5        <transition>
6          <keep-alive>
7            <router-view/>
8          </keep-alive>
9        </transition>
10     </v-content>
11     <v-footer v-if="false" color="light-green darken-4" app>
12       <span class="white--text">&copy; 2019</span>
13     </v-footer>
14   </v-app>
15 </template>
16
17 <script>
18   import NaviKeyToolbar from './components/NaviToolbar'
19
20   export default {
21     name: 'App',
22     mounted () {
23       this.$store.dispatch('loadDescJson')
24       this.$store.dispatch('loadDescStatesJson')
25     },
26     components: {
27       'navikey-toolbar': NaviKeyToolbar
28     },
29     data: () => ({
30     })
31   }
32 </script>
```

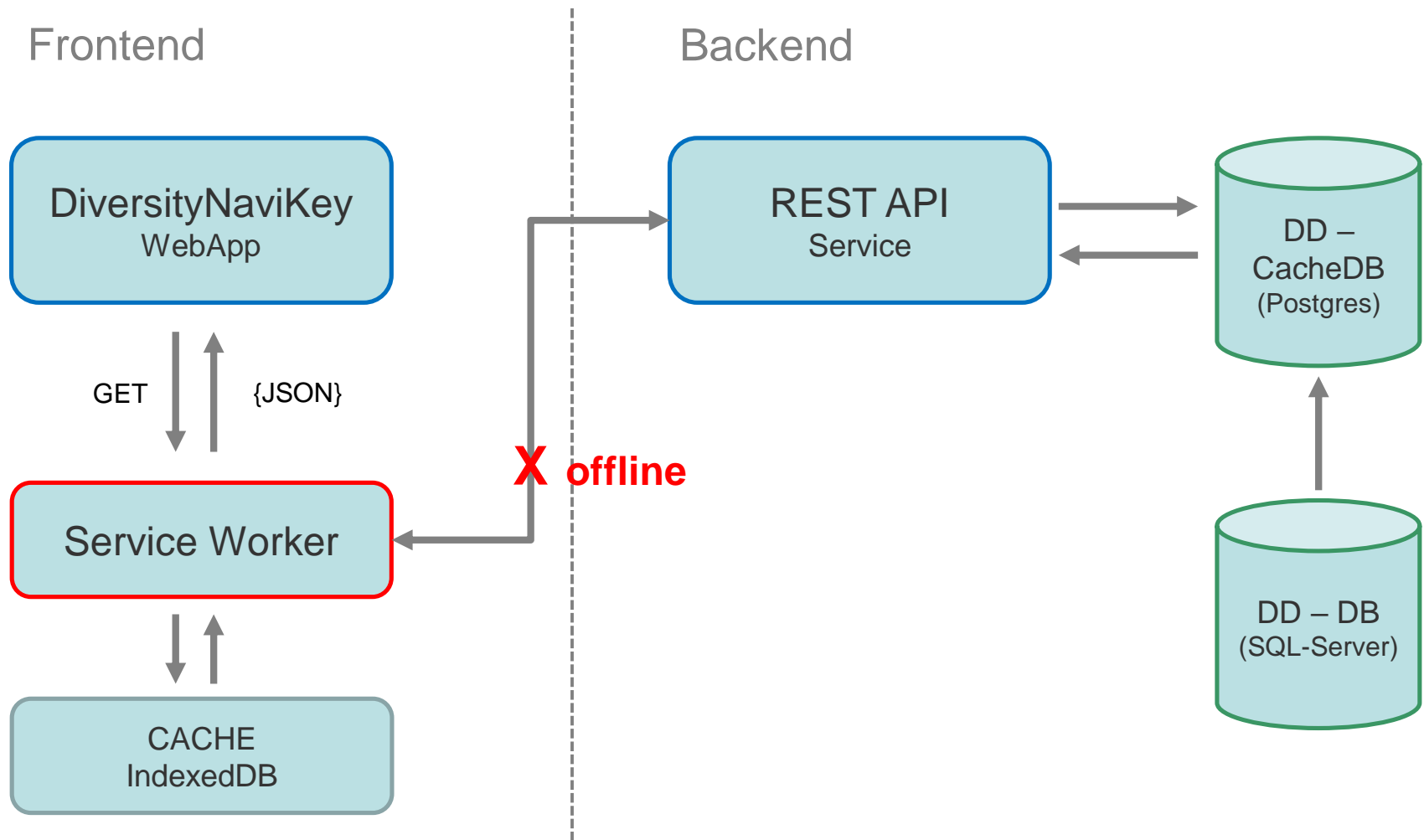
html

java-script

# DiversityNaviKey – Datenaustausch






# DiversityNaviKey – Datenaustausch






# DiversityNaviKey - Start

☰ DiversityNaviKey

 SELECTION  MATCHES: 0  DETAILS

---

Select Descriptor

 Start typing to search

# DiversityNaviKey – Select Descriptor

The screenshot displays the DiversityNaviKey application interface. At the top, there is a navigation bar with a hamburger menu icon, the text "DiversityNaviKey", and three main sections: "SELECTION" (with a magnifying glass icon), "MATCHES: 0" (with a gear icon), and "DETAILS" (with an information icon). Below this, a "Select Descriptor" dialog box is open, featuring a search input field containing the text "tax". A dropdown menu is visible below the input field, listing the following options: "taxonomic rank <level>", "genus <taxon>", "family <taxon>", and "order <taxon>". The first option is highlighted. The dialog box also includes a close button (X) and a scroll indicator (upward arrow).

# DiversityNaviKey – Select State

✓ ◦ genus <taxon> : Absconditella ✕

◦ **genus <taxon>**

Select descriptor state  
Absconditella | ▲

- Abrothallus
- Absconditella
- Acanthonitschkea
- Acanthothecis
- Acanthotrema
- Acarospora


# DiversityNaviKey – Verknüpfung UND

☰ DiversityNaviKey

 SELECTION  MATCHES: 1  DETAILS

---

Select Descriptor

  [asp] length ✕ ▾

---




Selected Criteria   DELETE ALL

Match  ANY  ALL

- genus <taxon> : Absconditella ✕
- [asp] length : Mean (= average) - between 12 and 20 ✕


# DiversityNaviKey – Verknüpfung ODER

☰ DiversityNaviKey


 SELECTION  MATCHES: 284  DETAILS

---



Select Descriptor

  [asp] length ✕ ▾

---




Selected Criteria  DELETE ALL

Match  ANY  ALL

- genus <taxon> : Absconditella 
- [asp] length : Mean (= average) - between 12 and 20 

# DiversityNaviKey – Suchergebnis

☰ DiversityNaviKey

 SELECTION  MATCHES: 284  DETAILS

---

[Absconditella delutula \(Nyl.\) Coppins & Killias >](#)

[Absconditella lignicola Vězda & Pišút >](#)

[Absconditella pauxilla Vězda & Vivant >](#)

[Absconditella sphagnum Vězda & Poelt >](#)

[Absconditella trivialis \(Tuck.\) Vězda >](#)

[Absconditella amabilis T. Sprib. >](#)

[Absconditella antarctica Søchting & Vězda >](#)

[Absconditella annexa \(Arnold\) Vězda >](#)

[Absconditella fossarum Vězda & Pišút >](#)

[Absconditella duplicella \(Nyl.\) Rossman >](#)

[Anisomeridium carinthiacum \(J. Steiner\) R. C. Harris >](#)

[Bacidia igniarum \(Nyl.\) Oxner >](#)

# DiversityNaviKey – Detailanzeige 1/2

The screenshot displays the DiversityNaviKey interface. At the top left is a hamburger menu icon. The title 'DiversityNaviKey' is in green. Below the title are three navigation options: 'SELECTION' with a magnifying glass icon, 'MATCHES: 284' with a puzzle piece icon, and 'DETAILS' with an information icon. The 'DETAILS' option is highlighted with a green underline. The main content area shows the species name 'Absconditella pauxilla Vězda & Vivant' in green. Below it is a list of seven categories, each with a right-pointing chevron: Taxonomy, Thallus, Ascomata, Occurrence, Chemistry, Conidiomata, and Ecology.

☰ DiversityNaviKey

🔍 SELECTION      🧩 MATCHES: 284      ⓘ DETAILS

**Absconditella pauxilla Vězda & Vivant**

- Taxonomy >
- Thallus >
- Ascomata >
- Occurrence >
- Chemistry >
- Conidiomata >
- Ecology >

# DiversityNaviKey – Detailanzeige 2/2

☰ DiversityNaviKey

🔍 SELECTION      🌟 MATCHES: 284      ⓘ DETAILS

---

< Taxonomy

taxonomic rank <level>:  
species

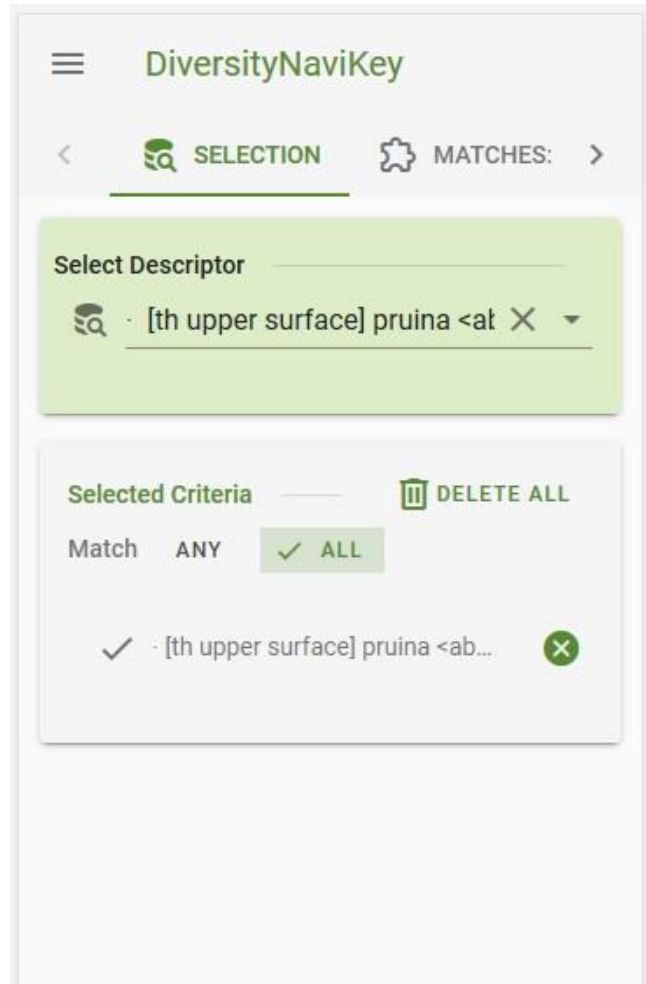
order <taxon>:  
Ostropales

○ family <taxon>:  
Stictidaceae Fr. (1849)

○ genus <taxon>:  
Absconditella



# DiversityNaviKey – Smartphone



# DiversityNaviKey – Stand 04/2020

- **Grundfunktionen**

- Auswahl: Deskriptoren und Deskriptoren – Zustand
  - Einfache Filterfunktion: logische UND / ODER  
Verknüpfung (ohne Kombinationen)
- Items – Liste aller Matches
- Detailanzeige eines Items (ohne Ressourcen)

# DiversityNaviKey – Stand 04/2020

- **Datenstruktur – Datenaustausch**

- Vier verschiedene NaviKey {json} – Strukturen
- Laden aller .json Dateien beim Start

⇒ ! Performance- (>1min.) und Speicherprobleme (>50MB) !

⇒ Aufteilung .json Files und einzelnes Laden, je nach  
Auswahlkriterien

# DiversityNaviKey – Stand 04/2020

- Liste aller Deskriptoren - **descriptors\_list.json**

```
[{"CID": number,  
  "CharName": string,  
  "Type": string,  
  "NumStates": number}]
```

- Liste der Deskriptoren mit Zuständen - **descriptors\_states\_list.json**

```
[{"CID": number,  
  "CS": string,  
  "CharStateName": string,  
  "StateID": number}]
```

# DiversityNaviKey – Stand 04/2020

- Itemliste zu jedem Deskriptor -

**descriptorID\_mapped\_descriptor\_state\_items.json**

```
[ {"descriptorID": number,  
  "stateCS": string,  
  "itemList": array :  
    [ {"itemID": number,  
      "itemName": string,  
      "numberValue": number}}]]
```

# DiversityNaviKey – Stand 04/2020

- Deskriptorenliste zu jedem Item - **item\_descriptor\_list.json**

```
[ {"itemID": number,  
  "name": string,  
  "descriptors": array :  
    [ {"descriptorID": number,  
      "stateCS": string,  
      "modifier": string,  
      "numberValue": number,  
      "txtValue": string}]]]
```

# DiversityNaviKey – Offene Punkte

- **Frontend**
  - Offline Fähigkeit
    - ServiceWorker und IndexedDB realisieren
    - Laden aller Daten in BrowserCache (50MB – Limit?) nicht möglich
    - Gruppierung/Priorisierung der Daten für Offline – Verfügbarkeit
  - UI Oberfläche – Workflow
  - Suchkriterien – Filterfunktionen (kombinierte UND / ODER Suche)
  - Bugfixes und Erweiterungen

# DiversityNaviKey – Offene Punkte

- **Backend**
  - Schnittstelle REST Service definieren (JSON:API Format)
  - REST Service implementieren (Python FLASK)
    - Anbindung an die DiversityDescriptions Cache DB
- **Allgemein**
  - Exception / Error handling
  - Automatisierte Tests