

International Training Centre for Environmental Research e.V. (ITCER)



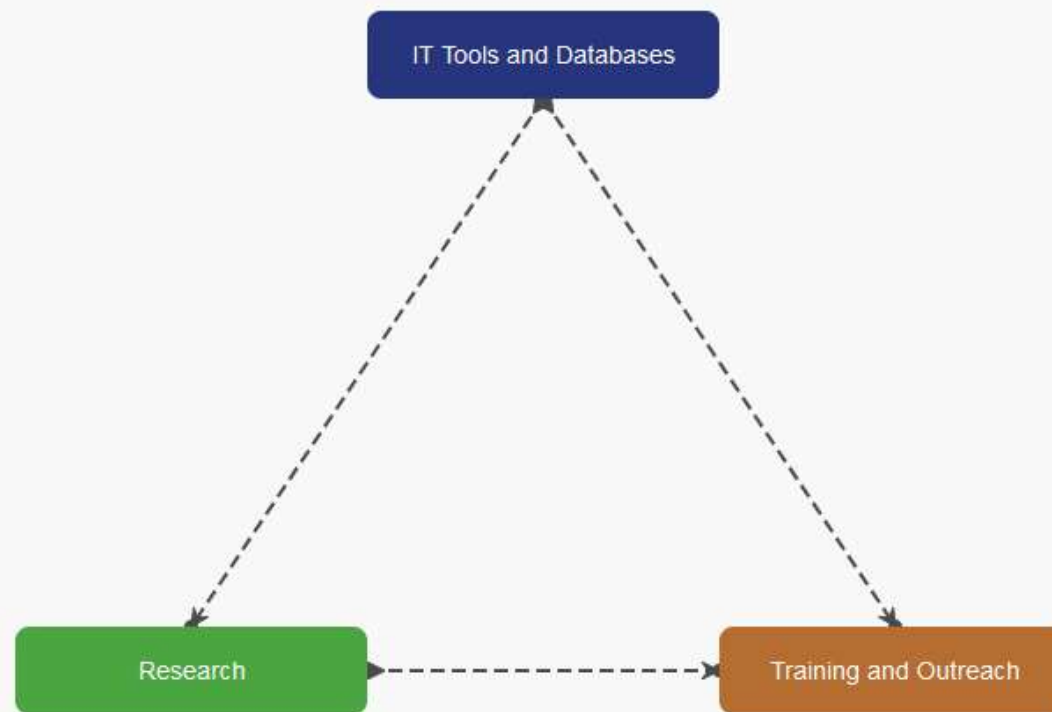
DWB Training with ITCER tools and data in Africa

- Date: Wednesday, October 16, 2024, at 09:00 EAT
- Venue: ITCER, Ng'iya, Siaya County, Kenya
- Organizers: NFDI4Biodiversity, SNSB IT Center, ITCER Kenya
- Summary: The workshop will focus on ITCER training materials and gaming approaches, bringing together ITCER members, scientists, school teachers, and local government employees. It will explore new ITCER approaches, the integration of training datasets with the Diversity Workbench (DWB), and support for renaturation efforts in Siaya County. This 1-day workshop is part of ongoing research activities with organizations in Africa and Europe, aiming to mobilize biodiversity data in tropical Africa.

Agenda

- 09:00 EAT: Arrival at ITCER (Participants)
- 10:00 EAT: Welcome and introduction to ITCER (Gerhard Rambold)
- 10:15 EAT: Round of introductions (Tanja Weibulat, Participants)
- 10:30 EAT: Introduction to Diversity Workbench for data management (Tanja Weibulat)
- 10:45 EAT: ITCER APIs and DWB Interface Concepts (Stefan Seifert)
- 11:00 EAT: ITCER e-training tools and data products (G. R.)
- 11:30 EAT: Discussion and End of Hybrid Session
- 12:00 EAT: Lunch Break
- 13:30 EAT: ITCER training exercises - Scientific Ethics, Diversity, Macrobiome Matching, Metabolite Classes, and Amino Acids (G. R.)
- 14:15 EAT: Feedback and Discussion on Next Steps
- 15:30 EAT: End of Workshop
- 18:00 EAT: Dinner in Siaya town

ITCER – Focus Points and Activities





Biodiversity encompasses the variety of life in all its forms: the diversity of within species, the diversity of within ecosystems, and the diversity of across regions. It is essential for the and resilience of ecosystems, supporting critical processes such as .

[stability](#)[pollination](#)[populations](#)[genes](#)[ecosystems](#)[Check Answer](#)[Reset Exercise](#)[New Phrase](#)



Biodiversity encompasses the variety of life in all its forms: the diversity of **genes** within species, the diversity of **ecosystems** within ecosystems, and the diversity of **populations** across regions. It is essential for the **stability** and resilience of ecosystems, supporting critical processes such as **pollination**.

[Check Answer](#)[Reset Exercise](#)[New Phrase](#)

Answers checked. Correct answers are highlighted in green, incorrect or unanswered ones in brown.




Biodiversity encompasses the variety of life in all its forms: the diversity of **genes** within species, the diversity of **populations** within ecosystems, and the diversity of **ecosystems** across regions. It is essential for the **stability** and resilience of ecosystems, supporting critical processes such as **pollination**.

[Check Answer](#)[Reset Exercise](#)[New Phrase](#)

Answers checked. Correct answers are highlighted in green, incorrect or unanswered ones in brown.

Full Screen

Dark Mode

Biodiversity 

Biodiversity

Genetic Diversity

Chemical Diversity

Functional Diversity

Alpha Diversity

Beta Diversity

Gamma Diversity

Full
Screen

Dark
Mode

Informed Consent



Informed Consent

Confidentiality and Data Protection

Conflict of Interest

Plagiarism and Academic Integrity

Animal Research Ethics

Data Normalization

Data Smoothing

Data Aggregation

Data Imputation

Data Transformation

Macrobiome Memory Game

Select Grid Size:



Educational Game

To test your knowledge, do the [Name-Species Matching Exercises](#) and the [Species-Name Matching Exercises](#).

Macrobiome Memory Game

Select Grid Size:

Restart

New Game

Toggle Full Screen

Toggle Dark Mode

Load Rankings

Single Player Mode

Two Player Mode

Clicks: 0



Enter
your
name:

Save
Score

Ranking List (Grid Size: 5 × 5)

Note: The two start names with 999 clicks used in this game are fictitious and not representative of real people. Saving names is not yet supported and will be introduced shortly.

Educational Game

To test your knowledge, do the [Name-Species Matching Exercises](#) and the [Species-Name Matching Exercises](#).

Macrobiome Memory Game

Select Grid Size: 5 × 5 ▾

Restart

New Game

Toggle Full Screen

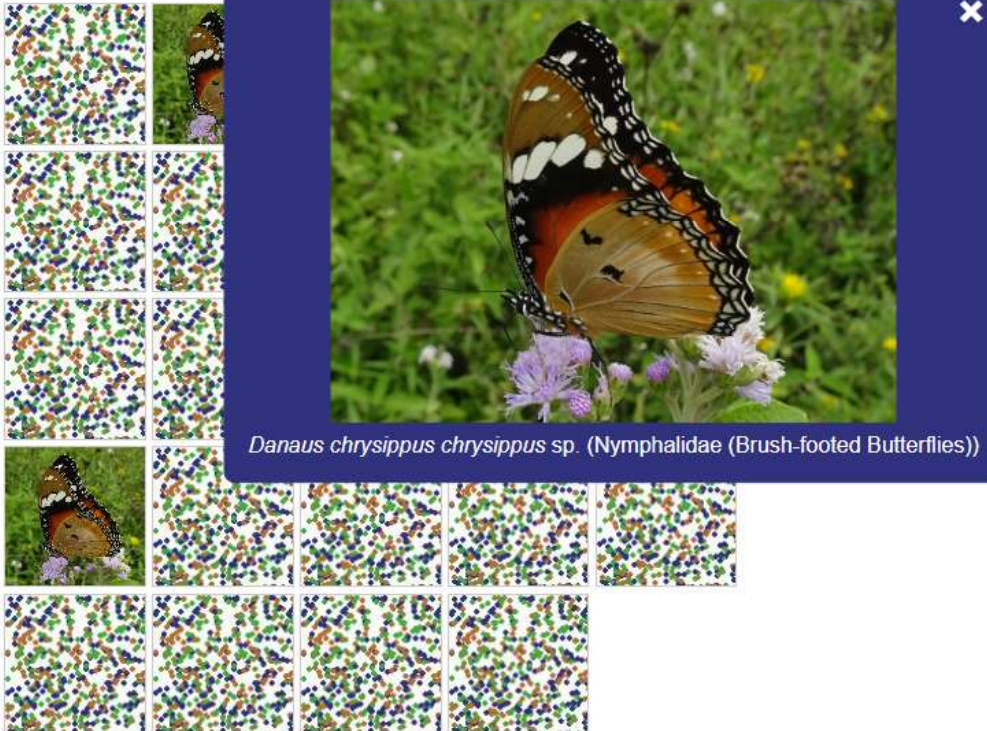
Toggle Dark Mode

Load Rankings

Single Player Mode

Two Player Mode

Clicks: 8



Danaus chrysippus chrysippus sp. (Nymphalidae (Brush-footed Butterflies))

Enter
your
name:

Name

Save
Score

Ranking List (Grid Size: 5 × 5)

Note: The two start names with 999 clicks used in this game are fictitious and not representative of real people. Saving names is not yet supported and will be introduced shortly.

Educational Game

To test your knowledge, do the [Name-Species Matching Exercises](#) and the [Species-Name Matching Exercises](#).



Synhoria cf. cephalotes (Meloidae (Blister beetles))

Peirates hybridus (Reduviidae (Assassin Bugs))

Chrysis lincea (Chrysididae (Cuckoo wasps))

Scolia cf. abyssinica (Scoliidae (Scoliid Wasps))

Chamaecrista mimosoides (Fabaceae (Legume family))

Centropus superciliosus loandae (Cuculidae (Cuckoos))

Argiope trifasciata (Araneidae (Orb-weaver spiders))

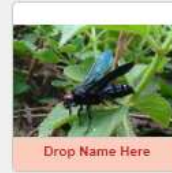
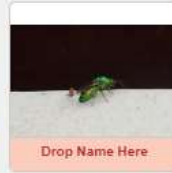
Zizeeria knysna (Lycaenidae (Gossamer-winged butterflies))

Striga hermontheica (Orobanchaceae (Broomrapes))

Mylothris rhodope (Pieridae (Whites and Sulphurs))

Check Matching

Reset Exercise



- Synhoria cf. cephalotes* (Meloidae (Blister beetles))
- Chrysis lincea* (Chrysididae (Cuckoo wasps))
- Scolia cf. abyssinica* (Scoliidae (Scoliid Wasps))
- Centropus superciliosus loandae* (Cuculidae (Cuckoos))
- Argiope trifasciata* (Araneidae (Orb-weaver spiders))
- Striga hermontheca* (Orobanchaceae (Broomrapes))

Check Matching Reset Exercise



Zizeeria knysna
(Lycaenidae
(Gossamer-winged
butterflies))



Argiope trifasciata
(Araneidae (Orb-weaver
spiders))



Chrysis lincea
(Chrysididae (Cuckoo
wasps))



Scolia cf. abyssinica
(Scoliidae (Scoliid
Wasps))



*Chamaecrista
mimosoides* (Fabaceae
(Legume family))



*Centropus
superciliosus loandae*
(Cuculidae (Cuckoos))



Peirates hybridus
(Reduviidae (Assassin
Bugs))



Synhoria cf. cephalotes
(Meloidea (Blister
beetles))



Mylothris rhodope
(Pieridae (Whites and
Sulphurs))



Striga hermontheica
(Orobanchaceae
(Broomrapes))

Check Matching

Reset Exercise



Zizeeria knysna
(Lycaenidae
(Gossamer-winged
butterflies))



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Striga hermontheca
(Orobanchaceae
(Broomrapes))

Check Matching

Reset Exercise



***Centropus superciliosus loandae* (Cuculidae (Cuckoos))**

Centropus superciliosus loandae is a subspecies of coucal in the family Cuculidae, known for its secretive behavior and often heard rather than seen in dense vegetation.

Lycus
cf.
trabeatus
(Lycidae (Net-winged beetles))

Drag Image Here

cf.
Melittidae
sp.
(Melittidae (Melittid bees))

Drag Image Here

Centella asiatica
(Apiaceae (Carrot Family))

Drag Image Here

Cryptacrus comes
(Scutelleridae (Shield bugs))

Drag Image Here

Chamaeleo dilepis
(Chamaeleonidae (Chamaeleons))

Drag Image Here



Check Matching

Reset Exercise

Lycus
cf.
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(Lycidae (Net-winged beetles))



cf.
Melittidae
sp.
(Melittidae (Melittid bees))



Centella asiatica
(Apiaceae (Carrot Family))



Cryptacrus comes
(Scutelleridae (Shield bugs))



Chamaeleo dilepis
(Chamaeleonidae (Chamaeleons))



Check Matching

Reset Exercise

Lycus
cf.
trabeatus
(Lycidae (Net-winged beetles))



cf.
Melittidae
sp.
(Melittidae (Melittid bees))

Centella asiatica
(Apiaceae (Carrot Family))



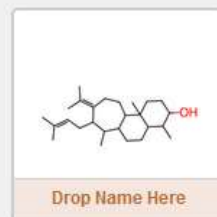
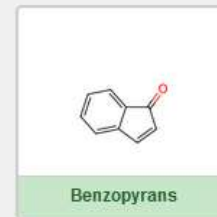
Cryptacrus comes
(Scutelleridae (Shield bugs))



Chamaeleo dilepis (Chamaeleonidae (Chamaeleons)) ✕



Chamaeleo dilepis is a species of chameleon in the family Chamaeleonidae. Chameleons are known for their ability to change color and their independently movable eyes.



Quinones

Amines

Amino-Acid Derivatives

Polymers

Lignans

Carbohydrates

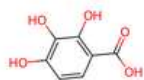
Isoprenoids

Steroids

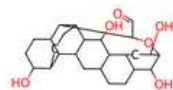
Check Matching

Reset Exercise

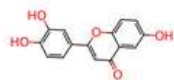
New Exercise



Drop Name Here



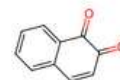
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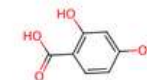
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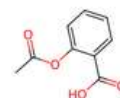
Drop Name Here



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Amines

Carboxylic Acid Derivatives

Betalains

Saponins

Benzofurans

Flavonoids

Quinones

Alcohols

Aliphatic Lactones

Phenol Carboxylic Acid Derivatives

Check Matching

Reset Exercise

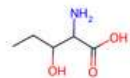
New Exercise

Amino Acid Formulas Matching Exercises

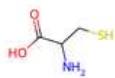
Full Screen

Dark Mode

5 Names



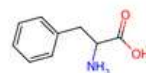
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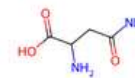
Drop Name Here



Drop Name Here



Drop Name Here



Drop Name Here

Cysteine

Asparagine

Alanine

Threonine

Phenylalanine

Check Matching

Reset Exercise

New Exercise

Amino Acid Formulas Matching Exercises

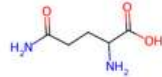
Full Screen

Dark Mode

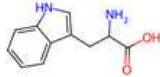
20 Names ▾



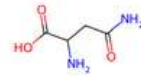
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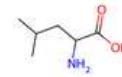
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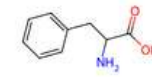
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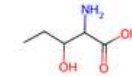
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Drop Name Here



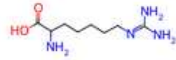
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Drop Name Here



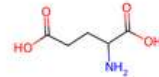
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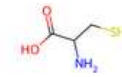
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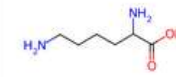
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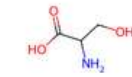
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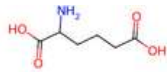
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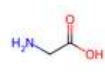
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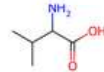
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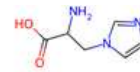
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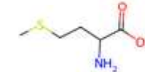
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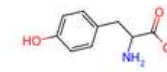
Drop Name Here



Drop Name Here



Drop Name Here



Drop Name Here

Cysteine

Glycine

Leucine

Serine

Methionine

Asparagine

Isoleucine

Glutamic Acid

Tryptophan

Tyrosine

Alanine

Phenylalanine

Glutamine

Threonine

Proline

Lysine

Aspartic Acid

Histidine

Valine

Arginine

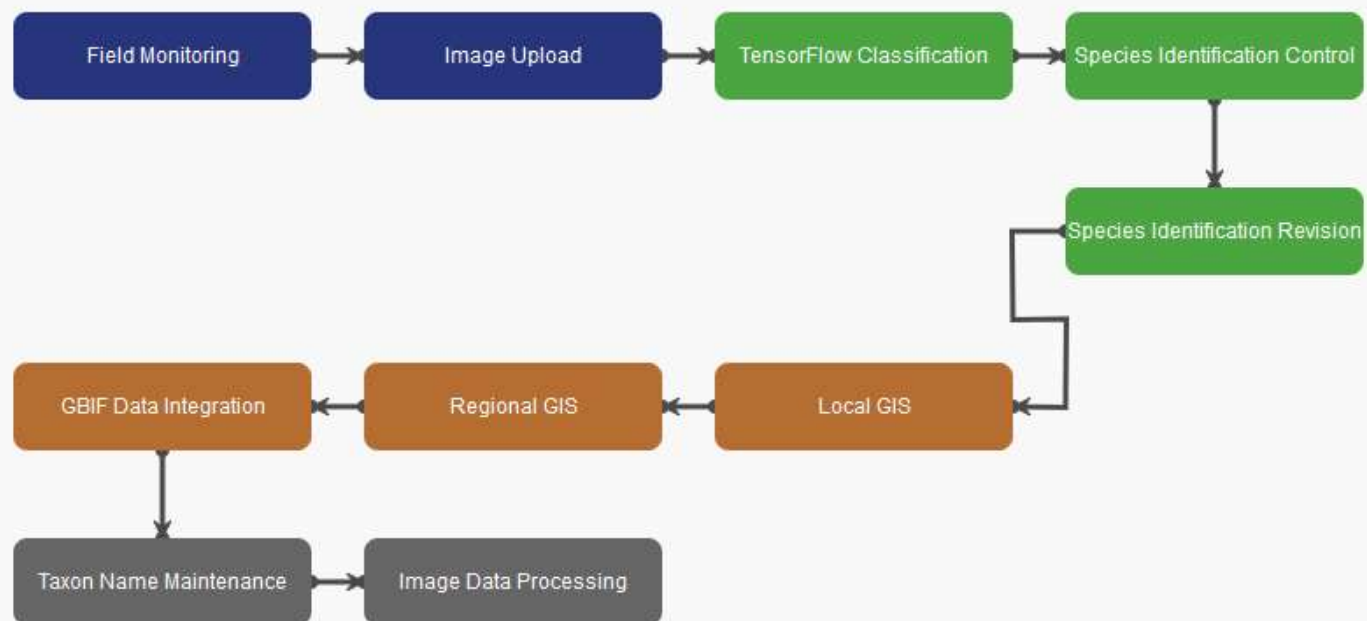
Check Matching

Reset Exercise

New Exercise

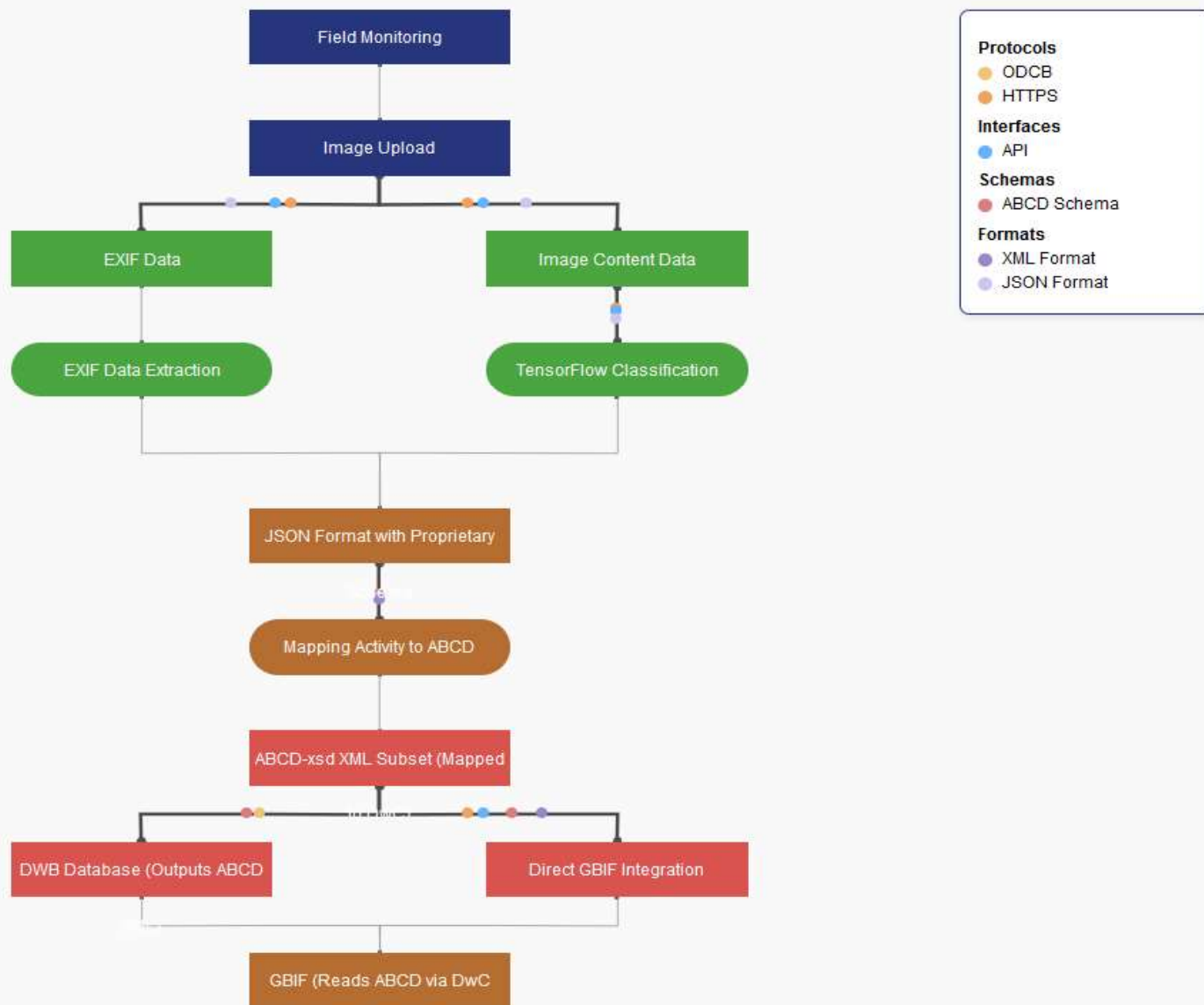
Biodiversity Monitoring Workflow

From Field Monitoring to Regional GIS and Taxon Maintenance



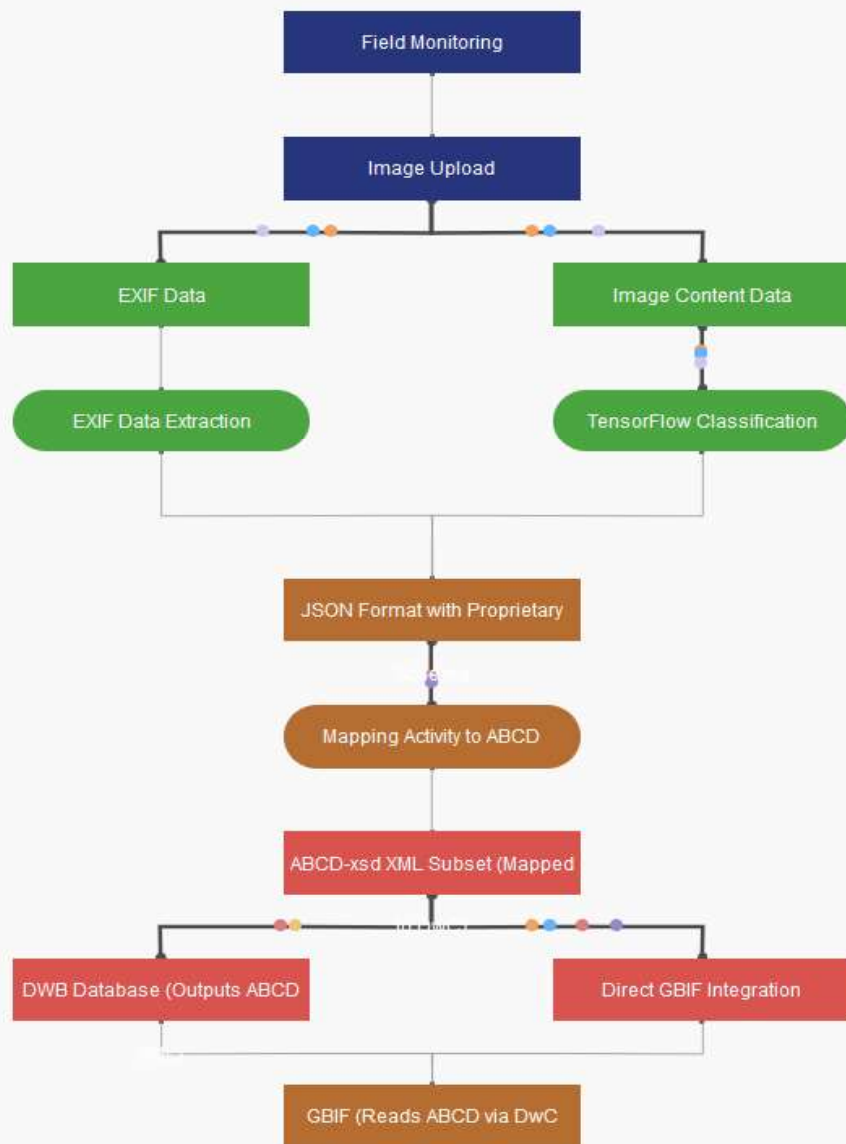
Biodiversity Monitoring Workflow

From Field Monitoring to GBIF Integration with ABCD and DwC Mapping



Biodiversity Monitoring Workflow

From Field Monitoring to GBIF Integration with ABCD and DwC Mapping



Protocols

- ODCB
- HTTPS

Interfaces

- API

Schemas

- ABCD Schema

Formats

- XML Format
- JSON Format

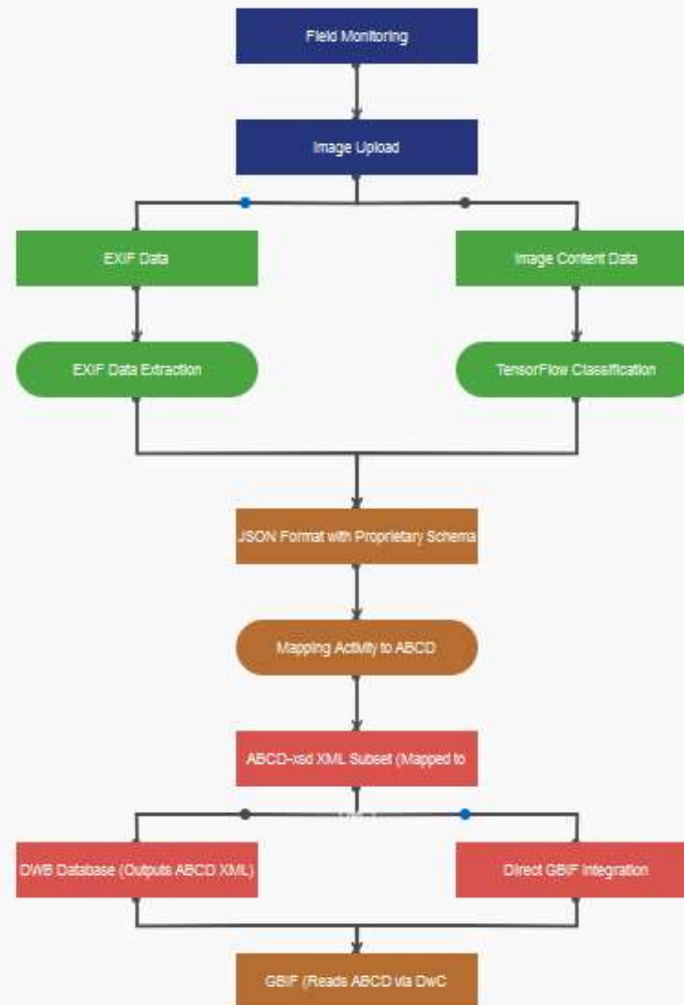
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Altitude: 1408.7
Date Taken: 2024:07:03 17:03:18



Biodiversity Monitoring Workflow - UML Activity Diagram

From Field Monitoring to GBIF Integration with ABCD and DwC Mapping

Latitude: 0.032878
Longitude: 34.362673
Altitude: 1408.7
Date Taken: 2024:07:03 17:03:18



Legend

- ODCB
- API



```
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```

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```

ABCD Subset based on DwC (xsd format)

```
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  <xs:element xmlns:ns10="http://www.w3.org/ns/sawSDL" name="AssemblageName" type="StringL" minOccurs="0" ns10:modelReference="http://rs.tdwg.org/abcd/mappings/Assemblage-Name"/>
  <xs:element xmlns:ns11="http://www.w3.org/ns/sawSDL" name="CollectorName" type="String" minOccurs="0" ns11:modelReference="http://rs.tdwg.org/abcd/mappings/FieldNumber-CollectorName"/>
  <xs:element xmlns:ns12="http://www.w3.org/ns/sawSDL" name="Sex" type="SexCodeEnum" minOccurs="0" ns12:modelReference="http://rs.tdwg.org/abcd/terms/Sex"/>
  <xs:element xmlns:ns13="http://www.w3.org/ns/sawSDL" name="ISODateTimeBegin" type="DateTimeISO" minOccurs="0" ns13:modelReference="http://rs.tdwg.org/abcd/terms/timeSpanBegin"/>
  <xs:element xmlns:ns14="http://www.w3.org/ns/sawSDL" name="ISODateTimeEnd" type="DateTimeISO" minOccurs="0" ns14:modelReference="http://rs.tdwg.org/abcd/terms/timeSpanEnd"/>
  <xs:element xmlns:ns15="http://www.w3.org/ns/sawSDL" name="Sex" type="String" minOccurs="0" ns15:modelReference="http://rs.tdwg.org/dwc/terms/sex"/>
  <xs:element xmlns:ns16="http://www.w3.org/ns/sawSDL" name="CodecName" type="String" minOccurs="0" ns16:modelReference="http://rs.tdwg.org/abcd/terms/codecName"/>
  <xs:element name="Name" type="Label"/>
  <xs:element name="PersonName">
    <xs:element xmlns:ns17="http://www.w3.org/ns/sawSDL" name="FullName" type="String255" ns17:modelReference="http://rs.tdwg.org/abcd/terms/fullName"/>
    <xs:element xmlns:ns18="http://www.w3.org/ns/sawSDL" name="SortingName" type="String255" minOccurs="0" ns18:modelReference="http://rs.tdwg.org/abcd/terms/sortingName"/>
    <xs:element name="AtomizedName" minOccurs="0">
      <xs:element xmlns:ns19="http://www.w3.org/ns/sawSDL" name="InheritedName" type="String255" ns19:modelReference="http://rs.tdwg.org/abcd/terms/inheritedName"/>
      <xs:element xmlns:ns20="http://www.w3.org/ns/sawSDL" name="PreferredName" type="String255" minOccurs="0" ns20:modelReference="http://rs.tdwg.org/abcd/terms/preferredName"/>
    </xs:element>
  </xs:element>
  <xs:element xmlns:ns21="http://www.w3.org/ns/sawSDL" name="InfrasubspecificName" type="String" minOccurs="0" ns21:modelReference="http://rs.tdwg.org/abcd/terms/infrasubspecificName"/>
  <xs:element xmlns:ns22="http://www.w3.org/ns/sawSDL" name="CultureName" type="StringL" maxOccurs="unbounded" ns22:modelReference="http://rs.tdwg.org/abcd/terms/cultureName"/>
  <xs:element xmlns:ns23="http://www.w3.org/ns/sawSDL" name="AccessionName" type="String" maxOccurs="unbounded" ns23:modelReference="http://rs.tdwg.org/abcd/terms/accessionName"/>
  <xs:element xmlns:ns24="http://www.w3.org/ns/sawSDL" name="Name" type="StringL" minOccurs="0" ns24:modelReference="http://rs.tdwg.org/abcd/mappings/Country-Name"/>
  <xs:element xmlns:ns25="http://www.w3.org/ns/sawSDL" name="ISO3166Code" type="String" minOccurs="0" ns25:modelReference="http://rs.tdwg.org/abcd/terms/iso3166Code"/>
  <xs:element xmlns:ns26="http://www.w3.org/ns/sawSDL" name="LowerValue" type="StringL" ns26:modelReference="http://rs.tdwg.org/abcd/terms/lowerValue"/>
  <xs:element xmlns:ns27="http://www.w3.org/ns/sawSDL" name="UpperValue" type="StringL" minOccurs="0" ns27:modelReference="http://rs.tdwg.org/abcd/terms/upperValue"/>
  <xs:element xmlns:ns28="http://www.w3.org/ns/sawSDL" name="Owner" type="Contact" maxOccurs="unbounded" ns28:modelReference="http://rs.tdwg.org/abcd/mappings/Owner http://rs.tdwg.org/abcd/mappings/DataSet-Owner"/>
  <xs:element xmlns:ns29="http://www.w3.org/ns/sawSDL" name="ScientificName" type="ScientificNameIdentified" minOccurs="0" ns29:modelReference="http://rs.tdwg.org/abcd/terms/ScientificName"/>
  <xs:element xmlns:ns30="http://www.w3.org/ns/sawSDL" name="InformalName" type="StringL" minOccurs="0" ns30:modelReference="http://rs.tdwg.org/abcd/terms/informalName"/>
  <xs:element xmlns:ns31="http://www.w3.org/ns/sawSDL" name="CultivarGroupName" type="String" minOccurs="0" ns31:modelReference="http://rs.tdwg.org/abcd/terms/cultivarGroupName"/>
  <xs:element xmlns:ns32="http://www.w3.org/ns/sawSDL" name="CultivarName" type="String" minOccurs="0" ns32:modelReference="http://rs.tdwg.org/abcd/terms/cultivarName"/>
  <xs:element xmlns:ns33="http://www.w3.org/ns/sawSDL" name="TradeDesignationName" type="String" maxOccurs="unbounded" ns33:modelReference="http://rs.tdwg.org/abcd/terms/tradeDesignationName"/>
  <xs:element name="ScientificName">
    <xs:element xmlns:ns34="http://www.w3.org/ns/sawSDL" name="FullScientificName" type="String" ns34:modelReference="http://rs.tdwg.org/abcd/terms/fullScientificName"/>
  </xs:element>
  <xs:element xmlns:ns35="http://www.w3.org/ns/sawSDL" name="HigherTaxonName" type="Monomial" ns35:modelReference="http://rs.tdwg.org/abcd/mappings/HigherTaxonName"/>
</xs:schema>
```

DWB Architecture Diagram

