

NFDI4Biodiversity x Bioschemas – Achievements, Mapping Gaps, and Community Requests

Report on technical deliverables, yet unsolved issues and possible community support

Time: ~15 minutes

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Motivation & Achievements

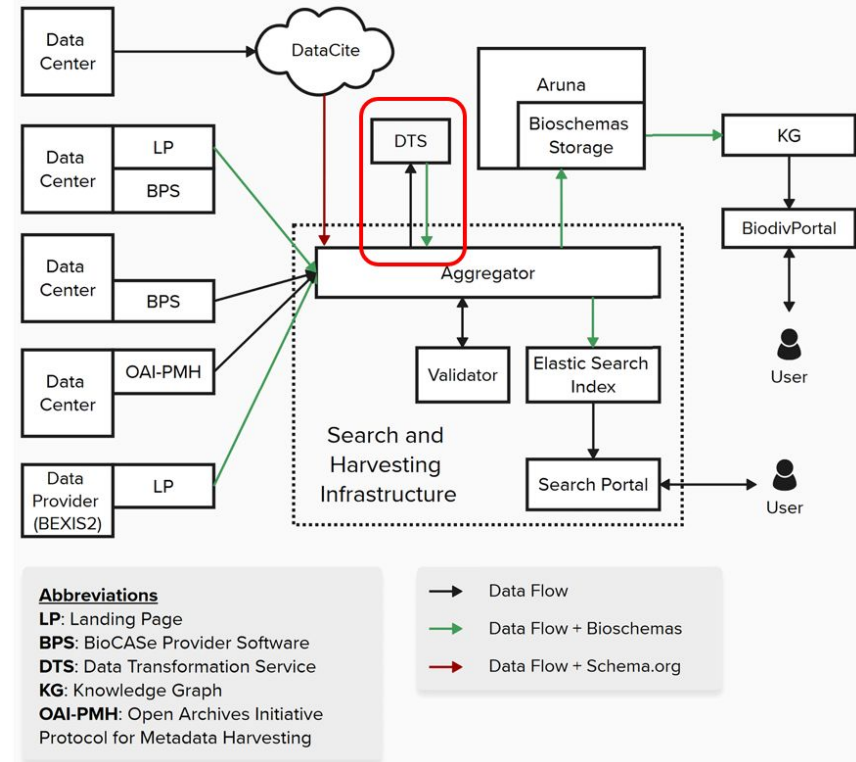


- NFDI4Biodiversity consortium endorsement of Bioschemas
 - for increasing visibility of biodiversity metadata (landing pages)
 - for internal search and harvesting infrastructure
- Forming of a Bioschemas Implementation Interest Group

→ White paper: Möller L, Ernst M, Fichtmüller D et al. Advancing FAIR Biodiversity Data: Bioschemas Implementation in NFDI4Biodiversity. F1000Research 2025, 14:1170 (<https://doi.org/10.12688/f1000research.170420.1>)

Motivation & Achievements

- ABCD 2.06 → Bioschemas mappings (Dataset for search done; BioSample and Taxon in progress)
- Data Transformation Service ([DTS](#)) producing JSON-LD (via XSLT + Python)
- Early adopters publishing server-side schema.org/Bioschemas JSON-LD: BEXIS2, DSMZ, SNSB
- [Mapping repository](#)



Mapping Approach & Principles



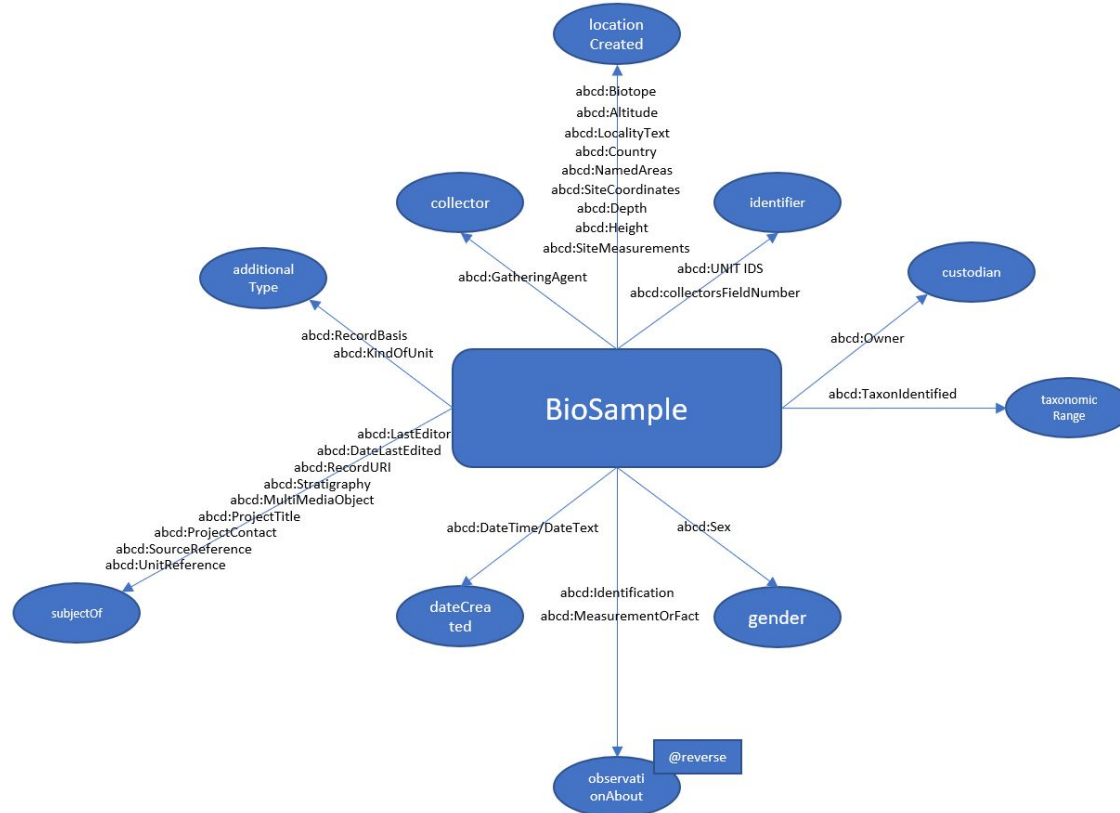
- Bioschemas marginality as premise (minimum/recommended/optional)
- Use case “Dataset Search”
 - Aggregation of information where possible
 - identifiers, taxons, localitions, measurements, people
 - Reuse existing properties; additionalProperty only as stopgap
 - Preserve reversibility where possible by one-to-one mappings
 - [Example request](#); example result
- Use case “Record landing pages”: Completeness as overall goal

Dataset Search Example

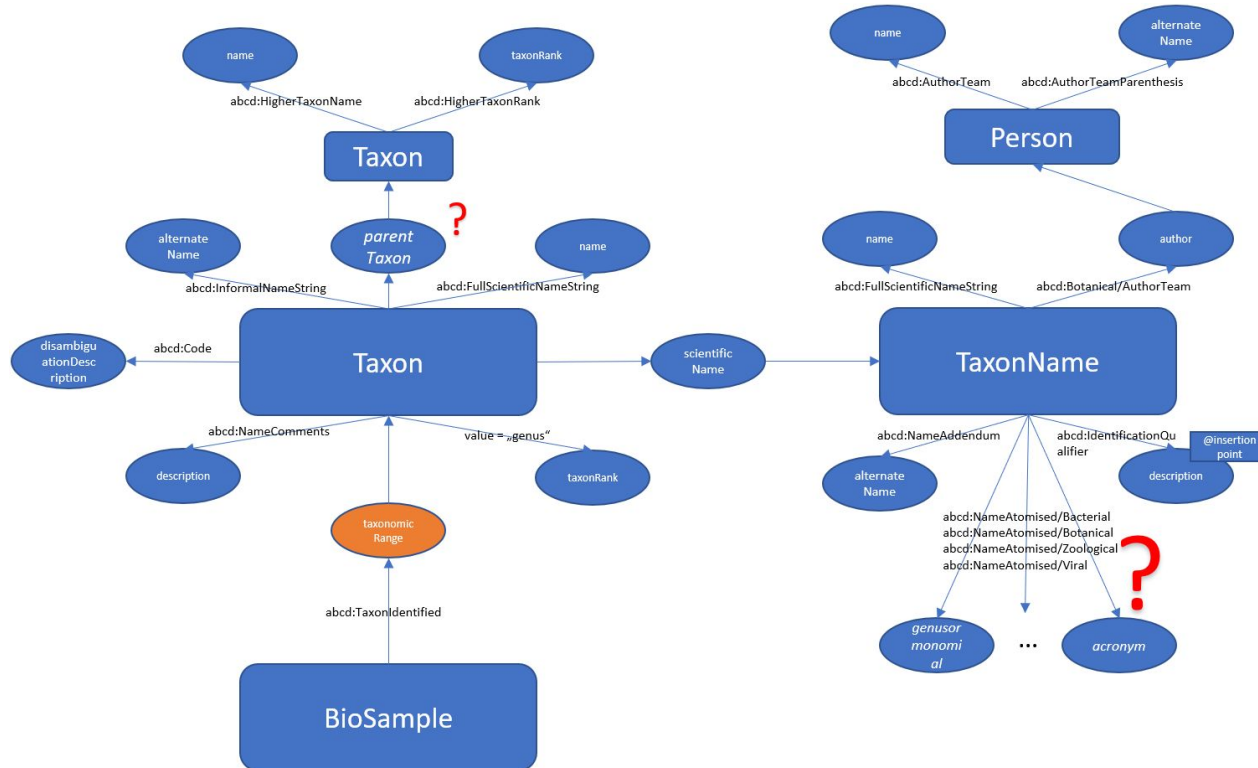
- Example result:
<https://transformation.gfbio.org/api/results/1429164959/output/result.json> (temporary)
- Mapping profile and scheme:
 - <https://zenodo.org/records/17253705>
 - <https://zenodo.org/records/17019239>

```
@type: "Dataset"
▼ dct:conformsTo:
  @type: "CreativeWork"
  @id: "https://bioschemas.org/profiles/Dataset/1.0-RELEASE"
  name: "Herbarium Berolinense"
  description: "The herbarium of the Botanic Garden and Botanical Museum Berlin-Dahlem (herbarium exchanges of specimens from other herbaria)"
  image: "http://www3.bgbm.org/providerResources/BGBM.jpg"
  inLanguage: "en"
  additionalType: "PreservedSpecimen"
  dateCreated: "2003-06-01"
  dateModified: "2008-02-21"
  datePublished: "2008-02-21"
  isAccessibleForFree: true
  size: { "@type": "QuantitativeValue", value: 10, unitText: "records" }
  usageInfo: [ {}, {} ]
  about:
    ▶ 0: { "@type": "BioSample", identifier: (2)[...], url: (1)[...] }
    ▶ 1: { "@type": "BioSample", identifier: (2)[...], url: (1)[...] }
    ▶ 2: { "@type": "BioSample", identifier: (2)[...], url: (1)[...] }
    ▶ 3: { "@type": "BioSample", identifier: (2)[...], url: (1)[...] }
    ▶ 4: { "@type": "BioSample", identifier: (2)[...], url: (1)[...] }
    ▶ 5: { "@type": "BioSample", identifier: (2)[...], url: (1)[...] }
    ▶ 6: { "@type": "BioSample", identifier: (2)[...], url: (1)[...] }
    ▶ 7: { "@type": "BioSample", identifier: (2)[...], url: (1)[...] }
    ▶ 8: { "@type": "BioSample", identifier: (2)[...], url: (1)[...] }
    ▶ 9: { "@type": "BioSample", identifier: (2)[...], url: (1)[...] }
    ▶ 10: { "@type": "Taxon", name: "Scorzonera eriosperma", taxonRank: "Species" }
    ▶ 11: { "@type": "Taxon", name: "Scorzonera cretica Willd.", taxonRank: "Species" }
    ▶ 12: { "@type": "Taxon", name: "Scorzonera taurica", taxonRank: "Species" }
    ▶ 13: { "@type": "Taxon", name: "Scorzonera fistulosa", taxonRank: "Species" }
    ▶ 14: { "@type": "Taxon", name: "Scorzonera quitensis", taxonRank: "Species" }
    ▶ 15: { "@type": "Taxon", name: "Plantae", taxonRank: "regnum" }
    ▶ 16: { "@type": "Taxon", name: "COMPOSITAE", taxonRank: "familia" }
```

ABCD:Unit → Bioschemas:BioSample Example



ABCD:Unit → Bioschemas:BioSample:Taxon



Specific Gaps & Limitations



- Missing sampling/observation event shifted focus on preserved specimens
- Missing elements:
 - Identification-related information (determiner, role, history etc.)
 - SpecimenUnit/ObservationUnit distinction
 - MediaObject properties (e.g., ImageResolution)
 - Measurement (MeasuredBy, AppliesTo)
 - Taxon: IDs, parentTaxon definition extension
 - Copyright, Disclaimer, Acknowledgement, IPRDeclaration (Dataset level)

Prioritized Bioschemas Items to be Proposed



- **Identification** as a specific type of observation with additional properties such as **measuredBy** (for determiner information) and **identificationResults** (with current and past results)
- **equipment** and **resolution** as new properties for existing MediaObject (ImageObject) type
- extension of **parentTaxon** definition to include taxa are not directly superordinate

Organizational & Technical Challenges



- Work of BslIG ended early
- So far one format for transformation (ABCD)
- Required testing and yet missing experience in production
- Harmonization
- SSSOM as machine-readable mapping documentation
- No published proposals for currently missing elements yet (require community coordination)

Thank you!

NFDI4Biodiversity:

 <https://nfdi4biodiversity.org>

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