National Spatial Data Infrastructure

1

2

Public Review Draft
Biological Data Profile
of the Content Standard for Digital Geospatial Metadata

6   Biological Data Working Group
7   Federal Geographic Data Committee
8   and USGS Biological Resources Division

9   July 1998

11   Established by Office of Management and Budget Circular A-16, the Federal Geographic Data Committee
12   (FGDC) promotes the coordinated development, use, sharing, and dissemination of geographic data.

13   The FGDC is composed of representatives from the Departments of Agriculture, Commerce, Defense,
14   Energy, Housing and Urban Development, the Interior, State, and Transportation; the Environmental
15   Protection Agency; the Federal Emergency Management Agency; the Library of Congress; the National
16   Aeronautics and Space Administration; the National Archives and Records Administration; and the
17   Tennessee Valley Authority. Additional Federal agencies participate on FGDC subcommittees and
18   working groups. The Department of the Interior chairs the committee.

19   FGDC subcommittees work on issues related to data categories coordinated under the circular.
20   Subcommittees establish and implement standards for data content, quality, and transfer; encourage the
21   exchange of information and the transfer of data; and organize the collection of geographic data to reduce
22   duplication of effort. Working groups are established for issues that transcend data categories.

23   For more information about the committee, or to be added to the committee's newsletter mailing list,
24   please contact:

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33   World Wide Web: http://www.fgdc.gov/fgdc.html

34   The following is the recommended bibliographic citation for this publication:
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55 **Introductory Material**

56   **1. Objective.** It has been determined that modifications to the FGDC Content Standard for

57 Digital Geospatial Metadata are needed to create meaningful metadata for biological data sets, thus the

58 objective of the profile is to provide a common set of terminology and definitions for the documentation of

59 biological data.

60   **2. Scope.** This profile is intended to support the collection and processing of biological data. It

61 is intended to be useable by all levels of government and the private sector. The standard is not intended

62 to reflect an implementation design. An implementation design requires adapting the structure and form

63 of the profile to meet application requirements.

64 The profile was developed from the perspective of defining the information required by a prospective user

65 to determine the availability of a set of biological data; to determine the fitness of a set of biological data

66 for an intended use; to determine the means of accessing the set of biological data; and to successfully

67 transfer the set of biological data. As such, the profile establishes the names of extended data elements

68 and compound elements (groups of data elements) to be used for documenting biological data, the

69 definitions of these extended compound elements and data elements, and information about the values that

70 are to be provided for the data elements. The profile also describes any modifications to the optionality or

71 repeatability of non-mandatory elements and any modifications to the domains of standard elements in the

72 FGDC's Content Standard for Digital Geospatial Metadata. The profile does not specify the means by

73 which this information is organized in a computer system or in a data transfer, nor the means by which

74 this information is transmitted, communicated, or presented to the user.

75   **3. Applicability.** Executive Order 12906, "Coordinating Geographic Data Acquisition and

76 Access: The National Spatial Data Infrastructure," was signed on April 11, 1994, by President William

77 Clinton. Section 3, Development of a National Geospatial Data Clearinghouse, paragraph (b) states:

78   "Standardized Documentation of Data. Beginning 9 months from the date of this order, each agency shall

79   document all new geospatial data it collects or produces, either directly or indirectly, using the standard

80   under development by the FGDC, for documenting, to the extent practicable, geospatial data previously

81   collected or produced, either directly or indirectly, and making that data documentation electronically

82   accessible to the Clearinghouse network." This is an official profile of the data documentation standard

83   referenced in the executive order. It is designed to document biological datasets, both geospatial and non-

84   geospatial in nature.

85   In addition to use by the Federal Government, the FGDC invites and encourages organizations and

86   persons from State, local, and tribal governments, the private sector, and non-profit organizations to use

87   the profile to document their biological data. A major difficulty in the data community is the lack of

88   information that helps prospective users to determine what data exist, the fitness of existing data for

89   planned applications, and the conditions for accessing existing data, and the transfer of data to a user's

90   system. This profile, developed with the aid of public participation, will help to ease these problems and

91   to develop the National Spatial Data Infrastructure, National Information Infrastructure, and National

92   Biological Information Infrastructure.

93   **4. Related Standards** The Content Standard for Digital Geospatial Metadata was developed to

94   identify and define the metadata elements used to document digital geospatial data sets for many purposes.

95   These include metadata to: 1) preserve the meaning and value of a data set; 2) contribute to a catalog or

96   clearinghouse and; 3) aid in data transfer.   The Biological Data Profile of the Content Standard for

97   Digital Geospatial Metadata was developed to identify and define the metadata elements used to document

98   biological data sets for the same purposes. Since biological data sets can be either geospatial or non-

99   geospatial in their nature, the Biological Data Profile is designed to be used to document both geospatial

100   and non-geospatial data sets. As a profile, all the requirements of the Content Standard for Digital

101   Geospatial Metadata must be met for any geospatial biological data set. Since the Biological Data Profile

102   extends the use of the Content Standard for Digital Geospatial Metadata into documenting non-geospatial

103   data sets, when biological in nature, some data elements required for documenting geospatial data sets

104   may be of marginal use for documenting non-geospatial data holdings. Under these conditions, these data

105   elements may contain a phrase such as "not applicable".

106   The Spatial Data Transfer Standard (SDTS) was developed to allow the transfer of digital spatial data sets

107   between spatial data software. Since the SDTS is a standard for data transfer, its primary metadata

108   content is used to determine the fitness of a geospatial data set for the user's purpose. There is a close

109   relationship between the Content Standard for Digital Geospatial Metadata and its associated profiles with

110   the SDTS metadata elements contained in the Data Quality module, and in other locations inside of the

111   SDTS transfer set. Since the Content Standard for Digital Geospatial Metadata and its profiles contain

112   metadata used to search for digital spatial data sets through a clearinghouse (metadata for locating,

113   describing access, use, and distribution), these elements may not be contained in an SDTS transfer set.

114   Since the Biological Data Profile is designed to be used to document biological data sets which are not

115   necessarily geospatial, these metadata will likely never be transfered via an SDTS transfer.

116   The June 8, 1994 FGDC Metadata Standard was used as the base document for the International

117   Organization for Standards (ISO) 15046 Part 15. The draft ISO Metadata Standard 15046 Part 15 has

118   had a number of changes made to it. At the time this profile was prepared, the ISO Metadata Standard

119   was still in Committee Draft form and subject to significant change before final approval, therefore this

120   profile may not reflect the current ISO draft, but is thought to be consistent with it.

121   **5. Standards Development Process** The Federal Geographic Data Committee (FGDC) initiated

122   work on the Content Standards for Digital Geospatial Metadata in June, 1992, through a forum on

123   geospatial metadata. At the forum, the participants agreed on the need for a standard on the information

124   content of metadata about geospatial data. The committee accepted the offer of AST12 Section D18.01.15

125   to develop a draft information content standard. This draft was slightly revised, and offered for public

126   review from October 1992 to April 1993. Extensive comments were received from the public. The FGDC

127   Standards Working Group revised the draft. The revised draft was provided for further review and testing

128   in July 1993. Refined drafts were offered for review and testing in January and March 1994. It was

129   officially adopted by the FGDC June 8, 1994.

130   Since the Metadata Standard was adopted, it has been implemented by numerous Federal, state, and local

131   agencies, companies, and groups. It has also been used by other nations as they develop their own

132   national metadata standards. Proposed changes to the Metadata Standard have been suggested during the

133   time since it was issued. Further, an implementor's workshop was held specifically to discuss strengths,

134   weaknesses, and proposed improvements. Drawing on this body of knowledge, the FGDC modified the

135   Metadata Standard in 1998.

136

137   The National Biological Service (NBS) was formed in 1993 from the research and related activities of

138   seven Department of the Interior bureaus, with the largest components coming from the U.S. Fish and

139   Wildlife Service and the National Park Service. The mission of the NBS was to work with others to

140   provide the scientific understanding and technologies needed to manage the Nation's biological resources.

141   In an effort to make data and information on biological resources more accessible for more people, the

142   NBS developed a national partnership for sharing biological information: the National Biological

143   Information Infrastructure (NBII). The NBS was integrated into the USGS in October 1996 as its

144   Biological Resources Division. The NBII, now a USGS-led initiative, is dedicated to the development of

145   an electronic "federation" of biological data and information sources. The goal of the NBII is to provide

146   swift user access to biological databases, information products, directories, and guides maintained by

147   Federal, State, and local government agencies, non-government institutions, and private sector

148   organizations in the United States and around the world. Thus the NBII promotes the availability of

149   biological information and its associated documentation on the internet.

150   In order to provide a standardized method for documenting biological data and information, an ad hoc

151   working group met in November 1994 to develop a "strawman" metadata standard. The original

152   strawman standard was created for documenting data and information considered non-spatial, and thus

153   not being documented using the FGDC's Content Standards for Digital Geospatial Metadata. The NBS

154   then commissioned the American Institute of Biological Sciences (AIBS) to convene a workshop of

155   national experts in the biological sciences to peer review and recommend modifications to the "strawman"

156   metadata standard. This workshop was held May 16 and 17, 1995. The workshop participants reviewed

157   the content of the NBS's strawman Metadata Standard for Non-Geospatial Data to assure completeness

158   and utility of the content from the biological science perspective. The AIBS review strongly supported the

159   idea of refocusing from "non-geospatial" data sets to "Biological resource" data sets, regardless of their

160   geospatial or non-geospatial characteristics. Thus the standard which was then produced: The Content

161   Standard for NBII Metadata was a superset of the FGDC's Content Standards for Digital Geospatial

162   Metadata. This allowed the use of one metadata standard with the choice of data elements appropriate for

163   documenting a given data set regardless of whether it is geospatial or non-geospatial in nature. The draft

164   NBII Metadata Standard was presented three times to the FGDC standards working group. In February

165   1996 the Standards Working Group supported the interim implementation of the "Content Standard for

166   NBII Metadata". In February 1997 the Standards Working Group approved the NBII Metadata Standard

167   as being in Draft Stage.

168   In 1998, with the revision of the FGDC Content Standard for Digital Geospatial Metadata, and the

169   clarification of the profile creation process, the FGDC Biological Data Working Group supported the

170   revision of the NBII Metadata standard into a profile of the Content Standard for Digital Geospatial

171   Metadata. It was released for public review in July 1998.

172   **6. Maintenance Authority** The current maintenance authority for the profile is the USGS

173   Biological Resources Division. Questions concerning the profile should be addressed to: Biological Data

174   Profile Questions, c/o USGS Center for Biological Informatics, Biological Resources Division, P.O. Box

175   25046, DFC, MS 302, Denver, CO 80225-0046. Copies of this publication are available from the Federal

176   Geographic Data Committee Secretariat, in care of the U.S. Geological Survey, 590 National Center,

177   Reston, Virginia 20192; telephone (703) 648-5514; facsimile (703) 648-5755; Internet (electronic mail)

178   fgdc@www.fgdc.gov. The text also is available from anonymous File Transfer Protocol (anonymous ftp)

179   server www.fgdc.gov and at the FGDC web site http://www.fgdc.gov/Metadata/Metadata.html.

180   **Elements of the Content Standard for Digital Geospatial Metadata**

181

182   All the standard elements of the Content Standard for Digital Geospatial Metadata are available for use in

183   the Metadata Profile for Biological Data. All the mandatory elements from the Content Standard for

184   Digital Geospatial Metadata must be provided in a metadata document compliant with the CSDGM

185   Profile for Biological Data.

186   **Changes to the Content Standard for Digital Geospatial Metadata**

187   Conditionality Changes

188   There are no changes to the conditionality of Standard elements from their original use in the Standard.

189   Since biological data sets can be either geospatial or non-geospatial in their nature, the Biological Data

190   Profile is designed to be used to document both geospatial and non-geospatial data sets. As a profile, all

191   the requirements of the Content Standard for Digital Geospatial Metadata must be met for any geospatial

192   biological data set. Since the Biological Data Profile extends the use of the Content Standard for Digital

193   Geospatial Metadata into documenting non-geospatial data sets, when biological in nature, some data

194   elements required for documenting geospatial data sets may be of marginal use for documenting non-

195   geospatial data holdings. Under these conditions, these data elements may contain a phrase such as "not

196   applicable". These elements include, but are not limited to Logical_Consistency_Report, and

197   Geospatial_Data_Presentation_Form.

198   Domain Changes

199   Due to the extension of the use of the Content Standard for Digital Geospatial Metadata into the use for

200   documenting biological data sets in general, some additions to domains of standard elements are required.

201   These changes are detailed below, using the numbering scheme found in the Content Standard for Digital

202   Geospatial Metadata, the element name, the domain as defined in the Content Standard for Digital

203   Geospatial Metadata, and then the additions.

204   1.3.1 Currentness Reference

205   Domain: "ground condition" "publication date" free text

206   Extended Domain: "observed"

207   2.2 Logical Consistency Report

208   Domain: free text

209   Extended Domain: "not applicable"

210   2.5.1.3 Type of Source Media

211   Domain: "paper" "stable-base material" "microfiche" "microfilm"   "audiocassette" "chart"

212   "filmstrip" "transparency" "videocassette" "videodisc" "videotape" "physical model"

213   "computer program" "disc" "cartridge tape" "magnetic tape" "online" "CD-ROM"

214   "electronic bulletin board" "electronic mail system" free text

215   Extended Domain: "digital database file" "field notes" "photographic print"

216   "printed table" "visually observed or measured"

217   2.5.1.4.1 Source Currentness Reference

218   Domain: "ground condition" "publication date" free text

219   Extended Domain: "observed"

220   6.4.2.1.1 Format Name

221   Domain: domain values from the table below; free text

222   Domain

223   Value   Definition

224   "ARCE"   ARC/INFO Export format

225   "ARCG"   ARC/INFO Generate format

226   "ASCII"   ASCII file, formatted for text attributes, declared format

227   "BIL"   Imagery, band interleaved by line

228   "BIP"   Imagery, band interleaved by pixel

229   "BSQ"   Imagery, band interleaved sequential

230   "CDF"   Common Data Format

231   "CFF"   Cartographic Feature File (U.S. Forest Service)

232   "COORD"   User-created coordinate file, declared format

233   "DEM"   Digital Elevation Model format (U.S. Geological Survey)

234   "DFAD"   Digital Feature Analysis Data (National Imagery and Mapping

235   Agency)

236   "DGN"   Microstation format (Intergraph corporation)

237   "DIGEST"   Digital Geographic Information Exchange Standard

238   "DLG"   Digital Line Graph (U.S. Geological Survey)

239   "DTED"   Digital Terrain Elevation Data (MIL-D-89020)

240   "DWG"   AutoCAD Drawing format

241   "DX90"   Data Exchange '90

242	"DXF"	AutoCAD Drawing Exchange Format
243	"ERDAS"	ERDAS image file (ERDAS Corporation)
244	"GRASS"	Geographic Resources Analysis Support System
245	"HDF"	Hierarchical Data Format
246	"IGDS"	Interactive Graphic Design System format (Intergraph Corporation)
247	"IGES"	Initial Graphics Exchange Standard
248	"MOSS"	Multiple Overlay Statistical System export file
249	"netCDF"	network Common Data Format
250	"NITF"	National Imagery Transfer Format
251	"RPF"	Raster Product Format (National Imagery and Mapping Agency)
252	"RVC"	Raster Vector Converted format (MicroImages)
253	"RVF"	Raster Vector Format (MicroImages)
254	"SDTS"	Spatial Data Transfer Standard (Federal Information Processing
255		Standard 173)
256	"SIF"	Standard Interchange Format (DOD Project 2851)
257	"SLF"	Standard Linear format (National Imagery and Mapping Agency)
258	"TIFF"	Tagged Image File Format
259	"TGRLN"	Topologically Integrated Geographic Encoding and Referencing
260		(TIGER) Line format (Bureau of the Census)
261	"VPF"	Vector Product Format (National Imagery and Mapping Agency)
262	Extended Domain:	
263	"DBF"	dBASE data file
264	"DIF"	VisiCalc format
265	"DOC"	Microsoft Word file
266	"EPS"	Encapsulated Postscript
267	"FW"	Framework spreadsheet or database format

268   "GIF"   Graphics Interchange Format

269   "GRA"   ARC/INFO graphic file

270   "MDB" Microsoft Access data file

271   "PBM" Portable Bit Map format file

272   "PLT"   ARC/INFO Plot file

273   "PS"   Postscript

274   "QP"   Quattro Pro data file

275   "RPD"   Rapid File

276   "SPLUS"   S-Plus file

277   "WK1" LOTUS 1-2-3 file

278   "WKS" LOTUS 1-2-3 file

279   "WP"   WordPerfect

280   "XLS"   Microsoft Excel worksheet

281   7.5 Metadata Standard Name

282   Domain: "FGDC Content Standards for Digital Geospatial Metadata" free text

283   Extended Domain: "Content Standard for National Biological

284   Information Infrastructure Metadata" "FGDC Biological Data Profile of

285   the Content Standard for Digital Geospatial Metadata"

286   8.6 Geospatial Data Presentation Form

287   Domain: (the listed domain is partially from pp. 88-91 *in* Anglo-American

288   Committee on Cataloguing of Cartographic materials, 1982, Cartographic

289   materials: A manual of interpretation for AACR2: Chicago, American

290   Library Association):

291   "atlas" "audio" "diagram" "document" "globe" "map" "model"

292   "multimedia presentation" "profile" "raster digital data"

293   "remote-sensing image" "section" "spreadsheet" "tabular digital data"

294   "vector digital data" "video" "view" free text

295   Extended Domain: "figure" "table (non-digital)"

296   **Extended Elements**

297   The following are the production rules for how the extended elements fit within the hierarchical structure

298   of the Content Standard for Digital Geospatial Metadata.

299   Identification_Information =

300   Citation +

301   Description +

302   Time_Period_of_Content +

303   Status +

304   0{Spatial_Domain}1 +

305   Keywords +

306   0{Taxonomy}1 +

307   Access_Constraints +

308   Use_Constraints +

309   (Point_of_Contact) +

310   (1{Browse_Graphic}n) +

311   (Data_Set_Credit) +

312   (Security_Information) +

313   (Native_Data_Set_Environment) +

314   (1{Cross_Reference}n) +

315   0{Analytical_Tool}n

316   Spatial_Domain =

317   Description _of_Geographic_Extent +

318   Bounding_Coordinates +

319   (1{Data_Set_G_Polygon}n)

320   Taxonomy =

321   1(Taxonomic_Keywords)n +

322   Taxonomic_Coverage

323   Taxonomic_Coverage =

324   [1{Specific_Taxonomic_Information}n |

325   General_Taxonomic_Coverage |

326   1{Specific_Taxonomic_Information}n +

327   General_Taxonomic_Coverage]

328   Specific_Taxonomic_Information =

329   0{Kingdom}1 +

330   0{Division-Phylum}1 +

331   0{Class}1 +

332   0{Order}1 +

333   0{Family}1 +

334   0{Genus}1 +

335   0{Species}1 +

336   (Applicable_Common_Names)

337   Analytical_Tool =

338   Analytical_Tool_Description +

339   Tool_Access_Information +

340   (Tool_Contact) +

341   (Tool_Citation)

342   Tool_Access_Information =

343   0{Tool_Network_Resource_Name}n +

344   Tool_Access_Instructions +

345   (Tool_Computer_and_Operating_System)

346   Tool_Contact =

347   Contact_Information

348   Tool_Citation =

349   Citation_Information

350   Data_Quality_Information =

351   0{Attribute_Accuracy}1 +

352   0{Logical_Consistency_Report}1 +

353   Completeness_Report +

354   0{Positional_Accuracy}1 +

355   Lineage +

356   (Cloud_Cover) +

357   0{Taxonomic_System}1

358   Lineage =

359   0{Methodology}n +

360   0{Source_Information}n +

361   1{Process_Step}n

362   Methodology =

363   Methodology_Type +

364   (Methodology_Identifier) +

365   Methodology_Description +

366   0{Methodology_Citation}n

367   Methodology_Identifier =

368   1{Methodology_Keyword_Thesaurus +

369   1{Methodology_Keyword}n}n

370   Methodology_Citation =

371   Citation_Information

372   Taxonomic_System =

373   1{Classification_System_or_Authority}n +

374   0{Identification_Reference}n +

375   (1{Identifier}n) +

376   Taxonomic_Procedures +

377   0{Taxonomic_Completeness}1 +

378   0{Vouchers}n

379   Classification_System_or_Authority =

380   Classification_System_Citation +

381   0{Classification_System_Modifications}1

382   Classification_System_Citation =

383   Citation_Information

384   Identification_Reference =

385   Citation_Information

386   Identifier =

387   Contact_information

388   Vouchers =

389   Specimen +

390   Repository

391   Repository =

392   Contact_Information

393

394   Extension_Information:

395   Name: Description_of_Geographic_Extent

396   Short_Name: descgeog

397   z3950 tag: 4112

398   Type: text

399   Domain: free text

400   Parent: Spatial_Domain

401   Optionality: Mandatory

402   Repeatability: =1

403   Definition:

404   Short description of the geographic areal domain of the data set. Examples include,

405   "Manistee River watershed", "extent of 7 1/2 minute quads containing any property

406   belonging to Yellowstone National Park", or "ponds and reservoirs larger than 2 acres in

407   Jefferson County, Colorado". This is especially important when the extent of the data

408   set is not well described by the "Bounding_Rectangle_Coordinates".

409   Rationale:

410   This description is especially important when the extent of the data set is not well

411   described by the "Bounding_Rectangle_Coordinates", or in the case of data which is not

412   specifically geospatial, to provide a geographic setting for the item being documented.

413   Assuming the "Bounding_Rectangle_Coordinates" do not adequately describe the extent

414   of the data set, the discrepancy can be identified and described in this data element. If

415   the item being documented is not specifically geospatial, the

416   "Bounding_Rectangle_Coordinates" can define a general polygon, such as a rectangle

417   around a country, with this "Description_of_Geographic_Extent" element containing a

418   disclaimer concerning the "Bounding_Rectangle_Coordinates" and/or further detail

419   concerning the geographic area of concern for the item being documented. For

420   example, a study of the diseases of salmon may not have a specific geographic extent

421   associated with it, but the salmon involved in the study were collected in Washington

422   and Oregon states, thus the "Bounding_Rectangle_Coordinates" might form a general

423   rectangle around the states of Washington and Oregon, but the

424   "Description_of_Geographic_Extent" might describe the fact that the extent within

425   Washington and Oregon included only certain rivers within those states.

426   This data element differs from the standard data element "Place_Keyword" in that it

427   allows a free text description of the geographic extent, rather than just a list of words or

428   phrases useful as an index of location names associated with the data set.

429   Source:

430   National Biological Information Infrastructure (NBII), USGS Biological

431   Resources Division, FGDC Biological Data Working Group

432   Extension_Information:

433   Name: Taxonomy

434   Short_Name: taxonomy

435   z3950 tag: 4001

436   Type: compound

437   Child: Taxonomic_Keywords

438   Child: Taxonomic_Coverage

439   Rule: Taxonomy =

440   1(Taxonomic_Keywords)n +

441   Taxonomic_Coverage

442   Parent: Identification_Information

443   Optionality: Mandatory-if-applicable

444   Repeatability: =0 or =1

445   Definition:

446   Information on the taxa (1 or more) included in the data set, including keywords, and

447   taxonomic coverage information.

448   Rationale:

449   To provide for better documentation of taxonomic coverage or inclusion.

450   Source:

451   National Biological Information Infrastructure (NBII), USGS Biological

452   Resources Division, FGDC Biological Data Working Group

453   Extension_Information:

454   Name: Taxonomic_Keywords

455   Short_Name: taxonkey

456   z3950 tag: 4002

457   Type: text

458   Domain:

459   "collection" "multiple species" "single species" "amphibians" "animals" "bacteria"

460   "fungi" "invertebrates" "lichens" "mammals" "mosses" "plants" "protists" "reptiles"

461   "vegetation" "vertebrates" "viruses" free text

462   Parent: Taxonomy

463   Optionality: Mandatory

464   Repeatability: >= 1

465   Definition:

466   Common-use words or phrases describing the taxonomy covered by the data set.

467   Rationale:

468   To provide general keywords for searching, and the beginning of a "pick list" to allow

469   users to identify data sets potentially addressing taxa of interest.

470   Source:

471   National Biological Information Infrastructure (NBII), USGS Biological

472   Resources Division, FGDC Biological Data Working Group

473   Extension_Information:

474   Name: Taxonomic_Coverage

475   Short_Name: taxoncov

476   z3950 tag: 4003

477   Type: compound

478   Child: Specific_Taxonomic_Information

479   Child: General_Taxonomic_Coverage

480   Rule: Taxonomic_Coverage =

481   [1{Specific_Taxonomic_Information}n |

482   General_Taxonomic_Coverage |

483   1{Specific_Taxonomic_Information}n +

484   General_Taxonomic_Coverage]

485   Parent: Taxonomy

486   Optionality: Mandatory

487   Repeatability: =1

488   Definition:

489   Information about the range of taxa addressed in the data set or collection. It is

490   recommended that one provide information to a level which reflects the data set or

491   collection being documented. For example, if the data set deals with one or two species,

492   then all data elements of the "Specific Taxonomic Information" compound element can

493   be provided and nothing need be entered in the "General Taxonomic Coverage" data

494   element. If the data set pertains to many species, then if possible, provide the "Specific

495   Taxonomic Information" to an appropriate level such as order or family, and/or provide

496   a description of the Taxa included in the data set in the "General Taxonomic Coverage"

497   data element.

498   Rationale:

499   To provide the capability to describe precisely the taxa addressed in the data set or

500   collection. This can be accomplished using either the Specific_Taxonomic_Information

501   compound element, to specify from Kingdom down to the appropriate taxonomic level,

502   or through a free text description within the General_Taxonomic_Coverage data

503   element, or both.

504   Source:

505   National Biological Information Infrastructure (NBII), USGS Biological Resources

506   Division, FGDC Biological Data Working Group

507 Extension_Information:

508   Name: Specific_Taxonomic_Information

509   Short_Name: taxoninf

510   z3950 tag: 4004

511   Type: compound

512   Child: Kingdom

513   Child: Division-Phylum

514   Child: Class

515   Child: Order

516   Child: Family

517   Child: Genus

20

518   Child: Species

519   Child: Applicable_Common_Names

520   Rule: Specific_Taxonomic_Information =

521   0{Kingdom}1 +

522   0{Division-Phylum}1 +

523   0{Class}1 +

524   0{Order}1 +

525   0{Family}1 +

526   0{Genus}1 +

527   0{Species}1 +

528   (Applicable_Common_Names)

529   Parent: Taxonomic_Coverage

530   Optionality: Mandatory

531   Repeatability: >=1

532   Definition:

533   Specification of the taxa addressed in the data set or collection.

534   Rationale:

535   To provide the capability to document the taxa addressed in the data set or collection via

536   the specification of Kingdom down to the appropriate taxonomic level. Occasionally a

537   level or levels may be left out, or filled with "unknown", due to the newness or revision

538   of the taxonomic classification of an organism.

539   Source:

540   National Biological Information Infrastructure (NBII), USGS Biological Resources

541   Division, FGDC Biological Data Working Group

542   Extension_Information:

543   Name: Kingdom

544   Short_Name: kingdom

545   z3950 tag: 4005

546   Type: text

547   Domain:

548   "Animalia" "Monera" "Protista" "Plantae" "Fungi" "unknown" free text

549   Parent: Specific_Taxonomic_Information

550   Optionality: Mandatory-if-applicable

551   Repeatability: =0 or =1

552   Definition: Specification of the Kingdom name.

553   Rationale:

554   Source:

555   National Biological Information Infrastructure (NBII), USGS Biological Resources

556   Division, FGDC Biological Data Working Group

557   Extension_Information:

558   Name: Division-Phylum

559   Short_Name: phylum

560   z3950 tag: 4006

561   Type: text

562   Domain:

563   (From the Integrated Taxonomic Information System (ITIS)) "unknown" free text

564   Parent: Specific_Taxonomic_Information

565   Optionality: Mandatory-if-applicable

566   Repeatability: =0 or =1

567   Definition: Specification of the Division / Phylum name.

568   Rationale:

569   Source:

570   National Biological Information Infrastructure (NBII), USGS Biological Resources

571   Division, FGDC Biological Data Working Group

572   Extension_Information:

573   Name: Class

574   Short_Name: class

575   z3950 tag: 4007

576   Type: text

577   Domain:

578   (From the Integrated Taxonomic Information System (ITIS)) "unknown" free text

579   Parent: Specific_Taxonomic_Information

580   Optionality: Mandatory-if-applicable

581   Repeatability: =0 or =1

582   Definition: Specification of the Class name.

583   Rationale:

584   Source:

585   National Biological Information Infrastructure (NBII), USGS Biological Resources

586   Division, FGDC Biological Data Working Group

587   Extension_Information:

588   Name: Order

589   Short_Name: order

590   z3950 tag: 4008

591   Type: text

592   Domain:

593   (From the Integrated Taxonomic Information System (ITIS)) "unknown" free text

594   Parent: Specific_Taxonomic_Information

595   Optionality: Mandatory-if-applicable

596   Repeatability: =0 or =1

597   Definition: Specification of the Order name.

598   Rationale:

599   Source:

600   National Biological Information Infrastructure (NBII), USGS Biological Resources

601   Division, FGDC Biological Data Working Group

602   Extension_Information:

603   Name: Family

604   Short_Name: family

605   z3950 tag: 4009

606   Type: text

607   Domain:

608   (From the Integrated Taxonomic Information System (ITIS)) "unknown" free text

609   Parent: Specific_Taxonomic_Information

610   Optionality: Mandatory-if-applicable

611   Repeatability: =0 or =1

612   Definition: Specification of the Family name.

613   Rationale:

614   Source:

615   National Biological Information Infrastructure (NBII), USGS Biological Resources

616   Division, FGDC Biological Data Working Group

617   Extension_Information:

618   Name: Genus

619   Short_Name: genus

620   z3950 tag: 4010

621   Type: text

622   Domain:

623   (From the Integrated Taxonomic Information System (ITIS)) "unknown" free text

624   Parent: Specific_Taxonomic_Information

625   Optionality: Mandatory-if-applicable

626   Repeatability: =0 or =1

627   Definition: Specification of the Genus name.

628   Rationale:

629   Source:

630   National Biological Information Infrastructure (NBII), USGS Biological Resources

631   Division, FGDC Biological Data Working Group

632   Extension_Information:

633   Name: Species

634   Short_Name: species

635   z3950 tag: 4011

636   Type: text

637   Domain:

638   (From the Integrated Taxonomic Information System (ITIS))

639   "unknown" free text

640   Parent: Specific_Taxonomic_Information

641   Optionality: Mandatory-if-applicable

642   Repeatability: =0 or =1

643   Definition:

644   Specification of the Species name, including subspecies, variety name, and

645   author citation (with date as appropriate).

646   Rationale:

647   Source:

648   National Biological Information Infrastructure (NBII), USGS Biological

649   Resources Division, FGDC Biological Data Working Group

650   Extension_Information:

651   Name: Applicable_Common_Names

652   Short_Name: common

653   z3950 tag: 4012

654   Type: text

655   Domain: free text

656   Parent: Specific_Taxonomic_Information

657   Optionality: Optional

658   Repeatability: =1

659   Definition:

660   Specification of applicable common names. These common names may be general

661   descriptions of a group of organisms if appropriate (e.g. insects, vertebrate, grasses,

662   waterfowl, vascular plants, etc.)

663   Rationale:

664   Source:

665   National Biological Information Infrastructure (NBII), USGS Biological Resources

666   Division, FGDC Biological Data Working Group

667   Extension_Information:

668   Name: General_Taxonomic_Coverage

669   Short_Name: taxongen

670   z3950 tag: 4105

671   Type: text

672   Domain: free text

673   Parent: Taxonomic_Coverage

674   Optionality: Mandatory (and/or Specific_Taxonomic_Information)

675   Repeatability: =1

676   Definition:

677   A description of the range of taxa addressed in the data set or collection. For example,

678   all vascular plants were identified to family or species, mosses and lichens were

679   identified as moss or lichen.

680   Rationale:

681   To provide the capability to document the taxa addressed in the data set or collection via

682   a free text description. This is especially important with data sets or collections which

683   would not be easily described using the Specific_Taxonomic_Information compound

684   element.

685   Source:

686   National Biological Information Infrastructure (NBII), USGS Biological Resources

687   Division, FGDC Biological Data Working Group

688   Extension_Information:

689   Name: Analytical_Tool

690   Short_Name: tool

691   z3950 tag: 4013

692   Type: compound

693   Child: Analytical_Tool_Description

694   Child: Tool_Access_Information

695   Child: Tool_Contact

696   Child: Tool_Citation

697   Parent: Identification_Information

698   Optionality: Mandatory-if-applicable

699   Repeatability: >=1

700   Definition:

701   Tools, models, or statistical procedures that the data set is intrinsically bound to and are

702   available for use in analyzing the data set. Examples include reconstructions of

703   phylogenies, population viability analyses, community ordinations, most atmospheric

704   and hydrological transport analyses, and inferences on the effects of climate change on

705   forest composition and productivity. Enough information should be included such that a

706   potential data user can easily determine why they might wish to acquire the analytical

707   tool, and the methodology to acquire it.

708   Rationale:

709   Some biological data sets are intrinsically bound to models or statistical procedures used

710   to generate them. In these cases, a description of the analyses and contact, citation, and

711   access information for the tools used are needed to properly interpret the data.

712   Source:

713   National Biological Information Infrastructure (NBII), USGS Biological Resources

714   Division, FGDC Biological Data Working Group

715   Extension_Information:

716   Name: Analytical_Tool_Description

717   Short_Name: tooldesc

718   z3950 tag: 4014

719   Type: text

720   Domain: free text

721   Parent: Analytical_Tool

722   Optionality: Mandatory

723   Repeatability: =1

724   Definition:

725   Description of the analytical tool, model, or statistical procedure.

726   Rationale:

727   Source:

728   National Biological Information Infrastructure (NBII), USGS Biological Resources

729   Division, FGDC Biological Data Working Group

730   Extension_Information:

731   Name: Tool_Access_Information

732   Short_Name: toolacc

733   z3950 tag: 4015

734   Type: compound

735   Child: Tool_Network_Resource_Name

736   Child: Tool_Access_Instructions

737   Child: Tool_Computer_and_Operating_System

738   Parent: Analytical_Tool

739   Optionality: Mandatory

740   Repeatability: =1

741   Definition:

742   Information on the steps required to access the tool.

743   Rationale:

744   Source:

745   National Biological Information Infrastructure (NBII), USGS Biological Resources

746   Division, FGDC Biological Data Working Group

747   Extension_Information:

748   Name: Tool_Contact

749   Short_Name: toolcont

750   z3950 tag: 4016

751   Type: compound

752   Child: Contact_Information

753   Parent: Analytical_Tool

754   Optionality: Optional

755   Repeatability: =1

756   Definition:

757   The party from whom the tool, model, or statistical procedure may be obtained.

758   Rationale:

759   Source:

760   National Biological Information Infrastructure (NBII), USGS Biological Resources

761   Division, FGDC Biological Data Working Group

762   Extension_Information:

763   Name: Tool_Citation

764   Short_Name: toolcite

765   z3950 tag: 4017

766   Type: compound

767   Child: Citation_Information

768   Parent: Analytical_Tool

769   Optionality: Optional

770   Repeatability: =1

771   Definition:

772   Citation information about the tool, model, or statistical procedure.

773   Rationale:

774   Source:

775   National Biological Information Infrastructure (NBII), USGS Biological Resources

776   Division, FGDC Biological Data Working Group

777   Extension_Information:

778   Name: Tool_Network_Resource_Name

779   Short_Name: toolnet

780   z3950 tag: 4018

781   Type: text

782   Domain: free text

783   Parent: Tool_Access_Information

784   Optionality: Mandatory-if-applicable

785   Repeatability: >=0

786   Definition:

787   The electronic address and name of the file or service from which the tool, model, or

788   statistical procedure can be obtained.

789   Rationale:

790   Source:

791   National Biological Information Infrastructure (NBII), USGS Biological Resources

792   Division, FGDC Biological Data Working Group

793   Extension_Information:

794   Name: Tool_Access_Instructions

795   Short_Name: toolinst

796   z3950 tag: 4019

797   Type: text

798   Domain: free text

799   Parent: Tool_Access_Information

800   Optionality: Mandatory

801   Repeatability: =1

802   Definition:

803   Instructions on the steps required to access the tool, model, or statistical procedure.

804   Rationale:

805   Source:

806   National Biological Information Infrastructure (NBII), USGS Biological Resources

807   Division, FGDC Biological Data Working Group

808   Extension_Information:

809   Name: Tool_Computer_and_Operating_System

810   Short_Name: toolcomp

811   z3950 tag: 4020

812   Type: text

813   Domain: free text

814   Parent: Tool_Access_Information

815   Optionality: Optional

816   Repeatability: =1

817   Definition:

818   The brand of computer and its operating system that the tool, model, or statistical

819   procedure requires.

820   Rationale:

821   Source:

822   National Biological Information Infrastructure (NBII), USGS Biological Resources

823   Division, FGDC Biological Data Working Group

824   Extension_Information:

825   Name: Methodology

826   Short_Name: method

827   z3950 tag: 4021

828   Type: compound

829   Child: Methodology_Type

830   Child: Methodology_Identifier

831   Child: Methodology_Description

832   Child: Methodology_Citation

833   Parent: Lineage

834   Optionality: Mandatory-if-applicable

835   Repeatability: >=0

836   Definition:

837   Information about a single step of field and/or laboratory work.

838   Rationale:

839   This element represents a critical element of the documentation required to interpret

840   important biological data sets.

841   Source:

842   National Biological Information Infrastructure (NBII), USGS Biological Resources

843   Division, FGDC Biological Data Working Group

844   Extension_Information:

845   Name: Methodology_Type

846   Short_Name: methtype

847   z3950 tag: 4022

848   Type: text

849   Domain: "Field" "Lab" free text

850   Parent: Methodology

851   Optionality: Mandatory

852   Repeatability: =1

853   Definition:

854   The type of methodology being documented, such as field or laboratory methodology.

855   Rationale:

856   This element should set a basic definition for the type of methodology being

857   documented.

858   Source:

859   National Biological Information Infrastructure (NBII), USGS Biological Resources

860   Division, FGDC Biological Data Working Group

861   Extension_Information:

862   Name: Methodology_Identifier

863   Short_Name: methodid

864   z3950 tag: 4023

865   Type: compound

866   Child: Methodology_Keyword_Thesaurus

867   Child: Methodology_Keyword

868   Parent: Methodology

869   Optionality: Optional

870   Repeatability: >=0

871   Definition:

872   Keywords or phrases summarizing the field or laboratory methods used.

873   Rationale:

874   Although there are no simple sets of standardized methods for all data collection, for

875   most classes of data, it should be possible to identify some standard terms describing the

876   methodology being documented. In some cases, standardized references or thesauri may

877   exist or may be under creation.

878   Source:

879   National Biological Information Infrastructure (NBII), USGS Biological Resources

880   Division, FGDC Biological Data Working Group

881   Extension_Information:

882   Name: Methodology_Keyword_Thesaurus

883   Short_Name: methkt

884   z3950 tag: 4024

885   Type: text

886   Domain: "None" free text

887   Parent: Methodology_Identifier

888   Optionality: Mandatory

889   Repeatability: =1

890   Definition:

891   Reference to a formally registered thesaurus or a similar authoritative source of

892   methodology keywords.

893   Rationale:

894   Although there are no simple sets of standardized methods for all data collection, for

895   most classes of data, it should be possible to identify some standard terms describing the

896   methodology being documented. In some cases, standardized references or thesauri may

897   exist or may be under creation.

898   Source:

899   National Biological Information Infrastructure (NBII), USGS Biological Resources

900   Division, FGDC Biological Data Working Group

901   Extension_Information:

902   Name: Methodology_Keyword

903   Short_Name: methkey

904   z3950 tag: 4025

905   Type: text

906   Domain: free text

907   Parent: Methodology_Identifier

908   Optionality: Mandatory

909   Repeatability: >=1

910   Definition:

911   The name of a method used in the field or laboratory work.

912   Rationale:

913   Although there are no simple sets of standardized methods for all data collection, for

914   most classes of data, it should be possible to identify some standard terms describing the

915   methodology being documented. In some cases, standardized references or thesauri may

916   exist or may be under creation.

917   Source:

918   National Biological Information Infrastructure (NBII), USGS Biological Resources

919   Division, FGDC Biological Data Working Group

920   Extension_Information:

921   Name: Methodology_Description

922   Short_Name: methdesc

923   z3950 tag: 4026

924   Type: text

925   Domain: free text

926   Parent: Methodology

927   Optionality: Mandatory

928   Repeatability: =1

929   Definition:

930   Equivalent to "Materials and Methods" in a journal article. Describe the physical

931   methods used to gather data, the experimental design, sample frequency, treatments or

932   strata, statistical and spatial design of the sampling, and sample completeness,

933   representativeness, and biases. For example, in a bird survey, relevant elements would

934   include the methods used to detect species occurrences (casual sightings, transects, focal

935   point surveys, vocalizations, mist nets), whether or not evidence of breeding activity was

936   required, descriptions of the habitat strata in a stratified design, and known biases (e.g.,

937   non-territorial birds were undersampled, and some juveniles could not be identified to

938   species.)

939   Rationale:

940   Source:

941   National Biological Information Infrastructure (NBII), USGS Biological Resources

942   Division, FGDC Biological Data Working Group

943   Extension_Information:

944   Name: Methodology_Citation

945   Short_Name: methcite

946   z3950 tag: 4027

947   Type: compound

948   Child: Citation_Information

949   Parent: Methodology

950   Optionality: Mandatory-if-applicable

951   Repeatability: =0 or =1

952   Definition: Information referencing the methods used.

953   Rationale:

954   Source:

955   National Biological Information Infrastructure (NBII), USGS Biological Resources

956   Division, FGDC Biological Data Working Group

957   Extension_Information:

958   Name: Taxonomic_System

959   Short_Name: taxonsys

960   z3950 tag: 4028

961   Type: compound

962   Child: Classification_System_or_Authority

963   Child: Identification_Reference

964   Child: Identifier

965   Child: Taxonomic_Procedures

966   Child: Taxonomic_Completeness

967   Child: Vouchers

968   Parent: Data_Quality_Information

969   Optionality: Mandatory-if-applicable

970   Repeatability: =0 or =1

971   Definition:

972   Documentation of taxonomic sources, procedures, and treatments.

973   Rationale:

974   The set of data elements contained within this compound element represent an attempt

975   to provide better documentation of taxonomic sources, procedures, and treatments as

976   strongly recommended in the American Institute of Biological Sciences Review to the

977   National Biological Service on the Content Standard for Non-Geospatial Metadata

978   Workshop, 1995.

979   Source:

980   National Biological Information Infrastructure (NBII), USGS Biological Resources

981   Division, FGDC Biological Data Working Group

982   Extension_Information:

983   Name: Classification_System_or_Authority

984   Short_Name: classsys

985   z3950 tag: 4029

986   Type: compound

987   Child: Classification_System_Citation

988   Child: Classification_System_Modifications

989   Parent: Taxonomic_System

990   Optionality: Mandatory

991   Repeatability: >=1

992   Definition:

993   Information about the classification system or authority used.

994   Rationale:

995   Together, the classification system and any modifications made to it represent a

996   significant piece of information concerning the data being documented.

997   Source:

998   National Biological Information Infrastructure (NBII), USGS Biological Resources

999   Division, FGDC Biological Data Working Group

1000   Extension_Information:

1001   Name: Classification_System_Citation

1002   Short_Name: classcit

1003   z3950 tag: 4030

1004   Type: compound

1005   Child: Citation_Information

1006   Parent: Classification_System_or_Authority

1007   Optionality: Mandatory

1008   Repeatability: =1

1009   Definition:

1010   A citation for the classification system or authority used, this might include monographs

1011   (e.g., a regional flora) or on-line data sets (e.g., the USDA PLANTS database), etc.

1012   Rationale:

1013   This data element defines the authority used for classifying. When appropriate, the

1014   Integrated Taxonomic Information System (ITIS) <URL:http://www.itis.usda.gov/itis/>

1015   should be used.

1016   Source:

1017   National Biological Information Infrastructure (NBII), USGS Biological Resources

1018   Division, FGDC Biological Data Working Group

1019   Extension_Information:

1020   Name: Classification_System_Modifications

1021   Short_Name: classmod

1022   z3950 tag: 4037

1023   Type: text

1024   Domain: free text

1025   Parent: Classification_System_or_Authority

1026   Optionality: Mandatory-if-applicable

1027   Repeatability: =0 or =1

1028   Definition:

1029   A description of any modifications or exceptions made to the classification system or

1030   authority used.

1031   Rationale:

1032   Many times a standard system is used, but exceptions are made for specific taxa or

1033   groups, this element allows for these exceptions or modifications to be described.

1034   Source:

1035   National Biological Information Infrastructure (NBII), USGS Biological Resources

1036   Division, FGDC Biological Data Working Group

1037   Extension_Information:

1038   Name: Identification_Reference

1039   Short_Name: idref

1040   z3950 tag: 4031

1041   Type: compound

1042   Child: Citation_Information

1043   Parent: Taxonomic_System

1044   Optionality: Mandatory-if-applicable

1045   Repeatability: >=0

1046   Definition:

1047   Information on any non-authoritative materials (e.g. field guides) useful for

1048   reconstructing the actual identification process.

1049   Rationale:

1050   This information can be useful for someone who wishes to make use of a dataset, and

1051   perhaps expand on it, following similar procedures.

1052   Source:

1053   National Biological Information Infrastructure (NBII), USGS Biological Resources

1054   Division, FGDC Biological Data Working Group

1055   Extension_Information:

1056   Name: Identifier

1057   Short_Name: ider

1058   z3950 tag: 4032

1059   Type: compound

1060   Child: Contact_information

1061   Parent: Taxonomic_System

1062   Optionality: Optional

1063   Repeatability: >=0

1064   Definition:

1065   Information about the individual(s) responsible for the identification(s) of the specimens

1066   or sightings, etc.

1067   Rationale:

1068   If there are any questions on the identification of specimens or field sightings, this

1069   should provide some insight into the data creator.

1070   Source:

1071   National Biological Information Infrastructure (NBII), USGS Biological Resources

1072   Division, FGDC Biological Data Working Group

1073   Extension_Information:

1074   Name: Taxonomic_Procedures

1075   Short_Name: taxonpro

1076   z3950 tag: 4035

1077   Type: text

1078   Domain: free text

1079   Parent: Taxonomic_System

1080   Optionality: Mandatory

1081   Repeatability: =1

1082   Definition:

1083   Description of the methods used for the taxonomic identification. Could include

1084   specimen processing, comparison with museum materials, keys and key characters,

1085   chemical or genetic analyses, etc.

1086   Rationale:

1087   In order to be able to make appropriate use of a biological data set, often it is important

1088   to know not just who identified the individuals or specimens, but what process did they

1089   used to do so.

1090   Source:

1091   National Biological Information Infrastructure (NBII), USGS Biological Resources

1092   Division, FGDC Biological Data Working Group

1093   Extension_Information:

1094   Name: Taxonomic_Completeness

1095   Short_Name: taxoncom

1096   z3950 tag: 4036

1097   Type: text

1098   Domain: free text

1099   Parent: Taxonomic_System

1100   Optionality: Mandatory-if-applicable

1101   Repeatability: =0 or =1

1102   Definition:

1103   Information concerning the proportions and treatment of unidentified materials (i.e.

1104   materials sent to experts, and not yet determined); estimates of the importance, and

1105   identities of misidentifications, uncertain determinations, synonyms or other incorrect

1106   usages; taxa not well treated or requiring further work; and expertise of field workers.

1107   Rationale:

1108   Source:

1109   National Biological Information Infrastructure (NBII), USGS Biological Resources

1110   Division, FGDC Biological Data Working Group

1111   Extension_Information:

1112   Name: Vouchers

1113   Short_Name: vouchers

1114   z3950 tag: 4033

1115   Type: compound

1116   Child: Specimen

1117   Child: Repository

1118   Parent: Taxonomic_System

1119   Optionality: Mandatory-if-applicable

1120   Repeatability: >=0

1121   Definition:

1122   Information on the types of specimen, the repository, and the individuals who identified

1123   the vouchers.

1124   Rationale:

1125   Source:

1126   National Biological Information Infrastructure (NBII), USGS Biological Resources

1127   Division, FGDC Biological Data Working Group

1128   Extension_Information:

1129   Name: Specimen

1130   Short_Name: specimen

1131   z3950 tag: 4038

1132   Type: text

1133   Domain:

1134   "herbarium specimens" "blood samples" "photographs" "individuals"   free text

1135   Parent: Vouchers

1136   Optionality: Mandatory

1137   Repeatability: =1

1138   Definition:

1139   A word or phrase describing the type of specimen collected (e.g. herbarium specimens,

1140   blood samples, photographs, individuals, or batches).

1141   Rationale:

1142   Source:

1143   National Biological Information Infrastructure (NBII), USGS Biological Resources

1144   Division, FGDC Biological Data Working Group

1145   Extension_Information:

1146   Name: Repository

1147   Short_Name: reposit

1148   z3950 tag: 4034

1149   Type: compound

1150   Child: Contact_Information

1151   Parent: Vouchers

1152   Optionality: Mandatory

1153   Repeatability: =1

1154   Definition:

1155   Information about the curator or contact person and/or agency responsible for the

1156   specimens.

1157   Rationale:

1158   If, for any reason, the specimens should need to be referred to, information about where

1159   they are being housed and who is responsible for them should be kept along with the

1160   documentation of the data set. If they have not been archived, this should be noted.

1161   Source:

1162   National Biological Information Infrastructure (NBII), USGS Biological Resources

1163   Division, FGDC Biological Data Working Group

1164   **Appendix A**

1165   **Glossary**

1166   **animalia** – (animals) Multicellular organisms possessing membrane-bound organelles and nucleus.

1167   Animals are heterotrophs and most are motile. Most animals reproduce via sperm and egg cells.

1168   Phylums within the animalia kingdom include porifera, cnidaria, platyhelminthes, nematoda, mollusca,

1169   annelida, arthropoda, echinodermata, and chordata.

1170   **biological data** – Any communication or representation of biologically related facts or information

1171   collected for computation or analysis.

1172   **class** – The primary subdivision of a taxonomic division or phylum, usually consisting of one or more

1173   orders.

1174   **division-phylum** – The primary subdivision of a taxonomic kingdom consisting of one or more classes of

1175   organisms.

1176   **family** – The major subdivision of a taxonomic order or suborder consisting of one or more genera.

1177   **fungi** – (fungus) Organisms which are nonmotile, heterotrophic, with membrane-bounded organelles and

1178   nucleus. Most fungi reproduce by means of spores, and are unable to perform photosynthesis. The

1179   divisions with the fungi kingdom include mycophycota, zygomycota, basidiomycota, ascomycota, and

1180   deuteromycota.

1181   **genus** – The major subdivision of a taxonomic family or subfamily usually consisting of one or more

1182   species.

1183   **kingdom** – One of the taxonomic divisions of living organisms, includes animals (animalia), plants

1184   (plantae), protists (protista), fungus (fungi), and (monera).

1185   **methodology** – A set or system of methods, principles, and rules for a biological inquiry procedure. This

1186   includes laboratory, field, data processing and statistical methodologies.

1187   **monera** – (bacteria, blue-green algae) Organisms lacking a cell nuclei. The divisions within the monera

1188   kingdom include archaebacteria and eubacteria.

1189   **observed** – To make a methodical or scientific record of something. Under "Currentness Reference" and

1190   "Source Currentness Reference" "observed" is used if you observed the time of the data collection. Under

1191   "Type of Source Media" "visually observed or measured" is used if the source of the data was generated

1192   from methodical or scientific observations or measurements.

1193   **order** – The major subdivision of a taxonomic class or subclass consisting of one or more taxonomic

1194   families.

1195   **plantae** – (plants) Multicellular organisms that perform photosynthesis to obtain their nutrition. Plants

1196   all possess chloroplasts and have distinct cell walls made of cellulose. The divisions with the plantae

1197   kingdom include bryophytes, gymnosperms, angiosperms, and sphenophyta.

1198   **protista** – (amoeba, euglena, paramecium, diatom, slime molds) The kingdom of protists consists of

1199   generally unicellular organisms possessing membrane-bound organelles and nucleus. The divisions

1200   within the protista kingdom include autotrophs and heterotrophs.

1201   **species** – The major subdivision of a genus or subgenus, regarded as the basic category of biological

1202   classification, composed of related individuals that resemble one another and are able to breed among

1203   themselves, but are generally not able to breed with members of another species.

1204   **taxa** – Taxonomic categories, such as species and genus.

1205   **taxonomy** – The science or technique of describing, identifying, naming, and classifying living

1206   organisms.

1207   **Appendix B**

1208   **Index**

1209   (NOTE: This index is subject to major revision, as the document is currently double spaced, and will be

1210   single spaced upon final publication, thus the location of the element names will change.)

1232   Methodology_Keyword_Thesaurus

1233   Methodology_Type

1234   Order

1235   Repository

1236   Species

1237   Specimen

1238   Specific_Taxonomic_Information

1239   Taxonomy

1240   Taxonomic_Completeness

1241   Taxonomic_Coverage

1242   Taxonomic_Keywords

1243   Taxonomic_Procedures

1244   Taxonomic_System

1245   Tool_Access_Information

1246   Tool_Access_Instructions

1247   Tool_Citation

1248   Tool_Computer_and_Operating_System

1249   Tool_Contact

1250   Tool_Network_Resource_Name

1251   Vouchers

1252   **Appendix C**

1253   **References**

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