N.B. Labels on relationship symbols correspond to numbers in the descriptions of cardinalities and relationships that follow.
TAXONOMIC CONCEPTS layer of the data model (Entity-relationship diagram 1.)
June 8, 1996

(Each=each instance of; <> signifies a relationship between two entities.)

1. BASIC TAXON <> USER
   a. Each BASIC TAXON is described or edited by one to many USERs.
   b. Each USER describes or edits one to many BASIC TAXONs.

2. AUTHOR <> AUTHOR-PUBLICATION-TAXON
   a. Each AUTHOR is correlated with either PUBLICATION or BASIC TAXON by one to many AUTHOR-PUBLICATION-TAXON associations.
   b. Each AUTHOR-PUBLICATION-TAXON association correlates either PUBLICATION or BASIC TAXON with exactly one AUTHOR.

3. BASIC TAXON <> AUTHOR-PUBLICATION-TAXON
   a. Each BASIC TAXON is correlated with AUTHOR by one to many AUTHOR-PUBLICATION-TAXON associations.
   b. Each AUTHOR-PUBLICATION-TAXON association correlates AUTHOR with zero or one BASIC TAXON.

4. BASIC TAXON <> CITATION
   a. Each BASIC TAXON is correlated with PUBLICATION by one to many CITATION associations.
   b. Each CITATION association correlates PUBLICATION with exactly one BASIC TAXON.

5. BASIC TAXON <> BASIC TAXON (first of two recursive relationships)
   a. Each BASIC TAXON is next higher taxon of zero to many BASIC TAXONs.
   b. Each BASIC TAXON is next lower taxon of zero or one BASIC TAXON.

6. BASIC TAXON <> BASIC TAXON (second of two recursive relationships)
   a. Each BASIC TAXON is senior synonym of zero to many BASIC TAXONs.
   b. Each BASIC TAXON is junior synonym of zero or one BASIC TAXON.

7. BASIC TAXON <> NOMEN NUDUM
   BASIC TAXON is the supertype; NOMEN NUDUM is one of two subtypes of BASIC TAXON.

8. BASIC TAXON <> FULL TAXON
   BASIC TAXON is the supertype; FULL TAXON is one of two subtypes of BASIC TAXON.

9. FULL TAXON <> NOMEN NUDUM
   a. Each FULL TAXON replaces zero or one NOMEN NUDUM.
   b. Each NOMEN NUDUM is replaced by exactly one FULL TAXON.
10. FULL TAXON <> FORMER NAME OF NOMEN TRANSLATUM
   FULL TAXON is the supertype; FORMER NAME OF NOMEN TRANSLATUM is one of six subtypes of FULL TAXON.

11. FULL TAXON <> FORMER NAME OF NOMEN TRANSLATUM
   a. Each FULL TAXON is the *nomen translatum* of zero to many FORMER NAME OF NOMEN TRANSLATUMs.
   b. Each FORMER NAME OF NOMEN TRANSLATUM is replaced by exactly one FULL TAXON (the *nomen translatum*).

12. FULL TAXON <> JUNIOR HOMONYM
    FULL TAXON is the supertype; JUNIOR HOMONYM is one of six subtypes of FULL TAXON.

13. FULL TAXON <> JUNIOR HOMONYM
    a. Each FULL TAXON is the *nomen novum* of zero or one JUNIOR HOMONYM.
    b. Each JUNIOR HOMONYM is replaced by exactly one FULL TAXON (the *nomen novum*).

14. FULL TAXON <> SENIOR HOMONYM
    FULL TAXON is the supertype; SENIOR HOMONYM is one of six subtypes of FULL TAXON.

15. SENIOR HOMONYM <>JUNIOR HOMONYM
    a. Each SENIOR HOMONYM has one to many JUNIOR HOMONYMs.
    b. Each JUNIOR HOMONYM has exactly one SENIOR HOMONYM.

16. FULL TAXON <> FORMER NAME OF NOMEN CORRECTUM
    FULL TAXON is the supertype; FORMER NAME OF NOMEN CORRECTUM is one of six subtypes of FULL TAXON.

17. FULL TAXON <> FORMER NAME OF NOMEN CORRECTUM
    a. Each FULL TAXON is the *nomen correctum* of zero to many FORMER NAME OF NOMEN CORRECTUMs.
    b. Each FORMER NAME OF NOMEN CORRECTUM is replaced by exactly one FULL TAXON (the *nomen correctum*).

18. FULL TAXON <> ORIGINAL FORM OF CHANGED NAME OF TYPE SPECIES
    FULL TAXON is the supertype; ORIGINAL FORM OF CHANGED NAME OF TYPE SPECIES is one of six subtypes of FULL TAXON.

19. FULL TAXON <> SUBJECT TAXON
    FULL TAXON is the supertype; SUBJECT TAXON is one of six subtypes of FULL TAXON.

20. SUBJECT TAXON <> GENUS
    SUBJECT TAXON is the supertype; GENUS is one of two subtypes of SUBJECT TAXON.
21. GENUS <> ORIGINAL FORM OF CHANGED NAME OF TYPE SPECIES
   a. Each GENUS is the genus of the current type species of zero or one ORIGINAL FORM OF CHANGED NAME OF TYPE SPECIES.
   b. Each ORIGINAL FORM OF CHANGED NAME OF TYPE SPECIES is the original form of the changed name of the current type species of exactly one GENUS.

22. GENUS <> SPECIES
   a. Each GENUS is the genus of zero to many SPECIES.
   b. Each SPECIES belongs to exactly one GENUS.

23. GENUS <> SPECIES LIST
   a. Each GENUS is the genus of zero to many SPECIES LISTs.
   b. Each SPECIES LIST belongs to exactly one GENUS.

24. SUBJECT TAXON <> SPECIES
    SUBJECT TAXON is the supertype; SPECIES is one of two subtypes of SUBJECT TAXON.

25. SPECIES <> TYPE SPECIES
    SPECIES is the supertype; TYPE SPECIES is the only subtype of SPECIES.

26. TYPE SPECIES <> ORIGINAL FORM OF CHANGED NAME OF TYPE SPECIES
    a. Each TYPE SPECIES is the current form of zero or one ORIGINAL FORM OF CHANGED NAME OF TYPE SPECIES.
    b. Each ORIGINAL FORM OF CHANGED NAME OF TYPE SPECIES has exactly one current TYPE SPECIES.

27. TYPE SPECIES <> GENUS
    a. Each TYPE SPECIES belongs to exactly one GENUS.
    b. Each GENUS has exactly one TYPE SPECIES (the current type species).
Entity-relationship diagram 2. PUBLICATION-ILLUSTRATION layer of the data model 6/8/96
Relationship cardinalities and descriptions—6

June 8, 1996

(Each=each instance of; <> signifies a relationship between two entities.)

1. PUBLICATION <> AUTHOR-PUBLICATION-TAXON
   a. Each PUBLICATION is correlated with AUTHOR by one to many AUTHOR-
      PUBLICATION-TAXON associations.
   b. Each AUTHOR-PUBLICATION-TAXON association correlates AUTHOR with
      zero or one PUBLICATION.

2. PUBLICATION <> CITATION
   a. Each PUBLICATION is correlated with BASIC TAXON by zero to many CITATION
      associations.
   b. Each CITATION association correlates BASIC TAXON with exactly one
      PUBLICATION.

3. PUBLICATION <> KEY WORD
   a. Each PUBLICATION is assigned zero to many KEY WORDs.
   b. Each KEY WORD is assigned to zero to many PUBLICATIONs.

4. LANGUAGE <> PUBLICATION
   a. Each LANGUAGE is the language of zero to many PUBLICATIONs.
   b. Each PUBLICATION is published in exactly one LANGUAGE.

5. FULL TAXON <> ILLUSTRATION
   a. Each FULL TAXON is the source of conceptual material for zero to many
      ILLUSTRATIONs.
   b. Each ILLUSTRATION is an illustration of a concept pertaining to exactly one FULL
      TAXON.

6. ILLUSTRATION <> PUBLISHED ILLUSTRATION
   ILLUSTRATION is the supertype; PUBLISHED ILLUSTRATION is the only subtype of
   ILLUSTRATION.

7. PUBLICATION <> PUBLISHED ILLUSTRATION
   a. Each PUBLICATION contains zero to many PUBLISHED ILLUSTRATIONs.
   b. Each PUBLISHED ILLUSTRATION is published in exactly one PUBLICATION.

8. PUBLICATION <> SPECIMEN
   a. Each PUBLICATION documents zero to many SPECIMENs.
   b. Each SPECIMEN is documented in zero to many PUBLICATIONs.

9. SPECIES <> SPECIMEN
   a. Each SPECIES is documented by zero to many SPECIMENs.
   b. Each SPECIMEN documents exactly one SPECIES.
10. ILLUSTRATION <> SPECIMEN  
   a. Each ILLUSTRATION is a picture of zero to many SPECIMENs.  
   b. Each SPECIMEN is illustrated by zero to many ILLUSTRATIONs.

11. REPOSITORY <> SPECIMEN  
   a. Each REPOSITORY holds zero to many SPECIMENs.  
   b. Each SPECIMEN is stored in exactly one REPOSITORY.

12. COUNTRY <> REPOSITORY  
   a. Each COUNTRY contains zero to many REPOSITORYs.  
   b. Each REPOSITORY is located in exactly one COUNTRY.

13. CITY <> REPOSITORY  
   a. Each CITY contains zero to many REPOSITORYs.  
   b. Each REPOSITORY is located in zero or one CITY.

14. COUNTRY <> CITY  
   a. Each COUNTRY contains zero to many CITYs.  
   b. Each CITY is located in zero or one COUNTRY.

15. COUNTRY <> STATE  
   a. Each COUNTRY contains zero to many STATEs.  
   b. Each STATE is located in exactly one COUNTRY.

16. STATE <> CITY  
   a. Each STATE contains zero to many CITYs.  
   b. Each CITY is located in zero or one STATE.

17. PUBLICATION <> JOURNAL ARTICLE  
   PUBLICATION is the supertype; JOURNAL ARTICLE is one of six subtypes of PUBLICATION.

18. JOURNAL OR SERIES <> JOURNAL ARTICLE  
   a. Each JOURNAL OR SERIES publishes zero to many JOURNAL ARTICLEs.  
   b. Each JOURNAL ARTICLE is published in exactly one JOURNAL OR SERIES.

19. PUBLICATION <> MONOGRAPH  
   PUBLICATION is the supertype; MONOGRAPH is one of six subtypes of PUBLICATION.

20. CITY <> MONOGRAPH  
   a. Each CITY is the publication site for zero to many MONOGRAPHs.  
   b. Each MONOGRAPH is published in zero to many CITYs.

21. JOURNAL OR SERIES <> MONOGRAPH  
   a. Each JOURNAL OR SERIES publishes zero to many MONOGRAPHs.  
   b. Each MONOGRAPH is published by zero or one JOURNAL OR SERIES.
22. PUBLISHER OR UNIVERSITY <> MONOGRAPH
   a. Each PUBLISHER OR UNIVERSITY publishes zero to many MONOGRAPHs.
   b. Each MONOGRAPH is published by zero to many PUBLISHER OR UNIVERSITYs.

23. PUBLICATION <> BOOK
   PUBLICATION is the supertype; BOOK is one of six subtypes of PUBLICATION.

24. CITY <> BOOK
   a. Each CITY is the publication site for zero to many BOOKs.
   b. Each BOOK is published in one to many CITYs.

25. PUBLISHER OR UNIVERSITY <> BOOK
   a. Each PUBLISHER OR UNIVERSITY publishes zero to many BOOKs.
   b. Each BOOK is published by one to many PUBLISHER OR UNIVERSITYs.

26. PUBLICATION <> OTHER PUBLICATION
   PUBLICATION is the supertype; OTHER PUBLICATION is one of six subtypes of PUBLICATION.

27. CITY <> OTHER PUBLICATION
   a. Each CITY is the publication site for zero to many OTHER PUBLICATIONs.
   b. Each OTHER PUBLICATION is published in zero to many CITYs.

28. JOURNAL OR SERIES <> OTHER PUBLICATION
   a. Each JOURNAL OR SERIES publishes zero to many OTHER PUBLICATIONs.
   b. Each OTHER PUBLICATION is published by zero or one JOURNAL OR SERIES.

29. PUBLISHER OR UNIVERSITY <> OTHER PUBLICATION
   a. Each PUBLISHER OR UNIVERSITY publishes zero to many OTHER PUBLICATIONs.
   b. Each OTHER PUBLICATION is published by zero to many PUBLISHER OR UNIVERSITYs.

30. PUBLICATION <> ELECTRONIC PUBLICATION
    PUBLICATION is the supertype; ELECTRONIC PUBLICATION is one of six subtypes of PUBLICATION.

31. PUBLICATION <> PART OF PUBLICATION
    PUBLICATION is the supertype; PART OF PUBLICATION is one of six subtypes of PUBLICATION.

32. PUBLICATION <> PART OF PUBLICATION
    a. Each PUBLICATION contains zero to many PART OF PUBLICATIONs.
    b. Each PART OF PUBLICATION is contained in exactly one PUBLICATION.
MORPHOLOGY layer of of the data model (Entity-relationship diagram 3a.)

June 8, 1996

(Each=each instance of; <> signifies a relationship between two entities.)

1. SPECIES <> MORPHOLOGY-SPECIES
   a. Each SPECIES is correlated with MORPHOLOGY by zero to many MORPHOLOGY-
      SPECIES associations.
   b. Each MORPHOLOGY-SPECIES association correlates MORPHOLOGY with exactly
      one SPECIES.
2. SPECIES <> MORPHOLOGY-SPECIES
   a. Each SPECIES (subspecies only) documents zero to many MORPHOLOGY-SPECIES associations.
   b. Each MORPHOLOGY-SPECIES association is documented by zero to many SPECIES (subspecies only).

3. MORPHOLOGY <> MORPHOLOGY-SPECIES
   a. Each MORPHOLOGY is correlated with SPECIES by zero to many MORPHOLOGY-SPECIES associations.
   b. Each MORPHOLOGY-SPECIES association correlates SPECIES with exactly one MORPHOLOGY.

4. SPECIMEN <> MORPHOLOGY-SPECIES
   a. Each SPECIMEN documents zero to many MORPHOLOGY-SPECIES associations.
   b. Each MORPHOLOGY-SPECIES association is documented by zero to many SPECIMENs.

5. PUBLICATION <> MORPHOLOGY-SPECIES
   a. Each PUBLICATION documents zero to many MORPHOLOGY-SPECIES associations.
   b. Each MORPHOLOGY-SPECIES association is documented by zero to many PUBLICATIONs.

6. SPECIES <> MORPHOLOGY-GENUS
   a. Each SPECIES documents zero to many MORPHOLOGY-GENUS associations.
   b. Each MORPHOLOGY-GENUS association is documented by zero to many SPECIES.

7. GENUS <> MORPHOLOGY-GENUS
   a. Each GENUS is correlated with MORPHOLOGY by one to many MORPHOLOGY-GENUS associations.
   b. Each MORPHOLOGY-GENUS association correlates MORPHOLOGY with exactly one GENUS.

8. MORPHOLOGY <> MORPHOLOGY-GENUS
   a. Each MORPHOLOGY is correlated with GENUS by zero to many MORPHOLOGY-GENUS associations.
   b. Each MORPHOLOGY-GENUS association correlates GENUS with exactly one MORPHOLOGY.

9. SPECIMEN <> MORPHOLOGY-GENUS
   a. Each SPECIMEN documents zero to many MORPHOLOGY-GENUS associations.
   b. Each MORPHOLOGY-GENUS association is documented by zero to many SPECIMENs.

10. PUBLICATION <> MORPHOLOGY-GENUS
    a. Each PUBLICATION documents zero to many MORPHOLOGY-GENUS associations.
b. Each MORPHOLOGY-GENUS association is documented by zero to many PUBLICATIONs.

1. SPECIES <> STRATIGRAPHY-GEOGRAPHY-SPECIES
   a. Each SPECIES is correlated with STRATIGRAPHY and GEOGRAPHY by zero to many STRATIGRAPHY-GEOGRAPHY-SPECIES associations.
   b. Each STRATIGRAPHY-GEOGRAPHY-SPECIES association correlates STRATIGRAPHY and GEOGRAPHY with exactly one SPECIES.

2. SPECIES <> STRATIGRAPHY-GEOGRAPHY-SPECIES
   a. Each SPECIES (subspecies only) documents zero to many STRATIGRAPHY-GEOGRAPHY-SPECIES associations.
   b. Each STRATIGRAPHY-GEOGRAPHY-SPECIES association is documented by zero to many SPECIES (subspecies only).

3. STRATIGRAPHY <> STRATIGRAPHY-GEOGRAPHY-SPECIES
   a. Each STRATIGRAPHY is correlated with SPECIES and GEOGRAPHY by zero to many STRATIGRAPHY-GEOGRAPHY-SPECIES associations.
   b. Each STRATIGRAPHY-GEOGRAPHY-SPECIES association correlates SPECIES and GEOGRAPHY with exactly one STRATIGRAPHY.
4. **GEOGRAPHY <> STRATIGRAPHY-GEOGRAPHY-SPECIES**
   a. Each GEOGRAPHY is correlated with SPECIES and STRATIGRAPHY by zero to many STRATIGRAPHY-GEOGRAPHY-SPECIES associations.
   b. Each STRATIGRAPHY-GEOGRAPHY-SPECIES association correlates SPECIES and STRATIGRAPHY with exactly one GEOGRAPHY.

5. **SPECIMEN <> STRATIGRAPHY-GEOGRAPHY-SPECIES**
   a. Each SPECIMEN documents zero to many STRATIGRAPHY-GEOGRAPHY-SPECIES associations.
   b. Each STRATIGRAPHY-GEOGRAPHY-SPECIES association is documented by zero to many SPECIMENs.

6. **PUBLICATION <> STRATIGRAPHY-GEOGRAPHY-SPECIES**
   a. Each PUBLICATION documents zero to many STRATIGRAPHY-GEOGRAPHY-SPECIES associations.
   b. Each STRATIGRAPHY-GEOGRAPHY-SPECIES association is documented by zero to many PUBLICATIONs.

7. **SPECIES <> STRATIGRAPHY-GEOGRAPHY-GENUS**
   a. Each SPECIES documents zero to many STRATIGRAPHY-GEOGRAPHY-GENUS associations.
   b. Each STRATIGRAPHY-GEOGRAPHY-GENUS association is documented by zero to many SPECIES.

8. **GENUS <> STRATIGRAPHY-GEOGRAPHY-GENUS**
   a. Each GENUS is correlated with STRATIGRAPHY and GEOGRAPHY by one to many STRATIGRAPHY-GEOGRAPHY-GENUS associations.
   b. Each STRATIGRAPHY-GEOGRAPHY-GENUS association correlates STRATIGRAPHY and GEOGRAPHY with exactly one GENUS.

9. **STRATIGRAPHY <> STRATIGRAPHY-GEOGRAPHY-GENUS**
   a. Each STRATIGRAPHY is correlated with GENUS and STRATIGRAPHY by zero to many STRATIGRAPHY-GEOGRAPHY-GENUS associations.
   b. Each STRATIGRAPHY-GEOGRAPHY-GENUS association correlates GENUS and STRATIGRAPHY with exactly one STRATIGRAPHY.

10. **GEOGRAPHY <> STRATIGRAPHY-GEOGRAPHY-GENUS**
    a. Each GEOGRAPHY is correlated with GENUS and STRATIGRAPHY by zero to many STRATIGRAPHY-GEOGRAPHY-GENUS associations.
    b. Each STRATIGRAPHY-GEOGRAPHY-GENUS association correlates GENUS and STRATIGRAPHY with exactly one GEOGRAPHY.

11. **SPECIMEN <> STRATIGRAPHY-GEOGRAPHY-GENUS**
    a. Each SPECIMEN documents zero to many STRATIGRAPHY-GEOGRAPHY-GENUS associations.
    b. Each STRATIGRAPHY-GEOGRAPHY-GENUS association is documented by zero to many SPECIMENs.
12. PUBLICATION <=> STRATIGRAPHY-GEOGRAPHY-GENUS
   a. Each PUBLICATION documents zero to many STRATIGRAPHY-GEOGRAPHY-
      GENUS associations.
   b. Each STRATIGRAPHY-GEOGRAPHY-GENUS association is documented by zero to many PUBLICATIONs.

Entity-relationship diagram 4a. ECOLOGY layer of the data model 6/8/96

ECOLOGY layer of of the data model (Entity-relationship diagram 4a.)
   June 8, 1996

(Each=each instance of; <> signifies a relationship between two entities.)

1. SPECIES <=> ECOLOGY-SPECIES
   a. Each SPECIES is correlated with ECOLOGY by zero to many ECOLOGY-SPECIES associations.
   b. Each ECOLOGY-SPECIES association correlates ECOLOGY with exactly one SPECIES.

2. SPECIES <=> ECOLOGY-SPECIES
   a. Each SPECIES (subspecies only) documents zero to many ECOLOGY-SPECIES associations.
   b. Each ECOLOGY-SPECIES association is documented by zero to many SPECIES (subspecies only).

3. ECOLOGY <=> ECOLOGY-SPECIES
   a. Each ECOLOGY is correlated with SPECIES by zero to many ECOLOGY-SPECIES associations.
   b. Each ECOLOGY-SPECIES association correlates SPECIES with exactly one ECOLOGY.
4. SPECIMEN <> ECOLOGY-SPECIES
   a. Each SPECIMEN documents zero to many ECOLOGY-SPECIES associations.
   b. Each ECOLOGY-SPECIES association is documented by zero to many SPECIMENs.

5. PUBLICATION <> ECOLOGY-SPECIES
   a. Each PUBLICATION documents zero to many ECOLOGY-SPECIES associations.
   b. Each ECOLOGY-SPECIES association is documented by zero to many PUBLICATIONs.

6. SPECIES <> ECOLOGY-GENUS
   a. Each SPECIES documents zero to many ECOLOGY-GENUS associations.
   b. Each ECOLOGY-GENUS association is documented by zero to many SPECIES.

7. GENUS <> ECOLOGY-GENUS
   a. Each GENUS is correlated with ECOLOGY by zero to many ECOLOGY-GENUS associations.
   b. Each ECOLOGY-GENUS association correlates ECOLOGY with exactly one GENUS.

8. ECOLOGY <> ECOLOGY-GENUS
   a. Each ECOLOGY is correlated with GENUS by zero to many ECOLOGY-GENUS associations.
   b. Each ECOLOGY-GENUS association correlates GENUS with exactly one ECOLOGY.

9. SPECIMEN <> ECOLOGY-GENUS
   a. Each SPECIMEN documents zero to many ECOLOGY-GENUS associations.
   b. Each ECOLOGY-GENUS association is documented by zero to many SPECIMENs.

10. PUBLICATION <> ECOLOGY-GENUS
    a. Each PUBLICATION documents zero to many ECOLOGY-GENUS associations.
    b. Each ECOLOGY-GENUS association is documented by zero to many PUBLICATIONs.
PLATE TECTONICS layer of the data model (Entity-relationship diagram 4b.)
June 8, 1996

(Each=each instance of; <> signifies a relationship between two entities.)

1. SPECIES <> PLATE TECTONICS-SPECIES
   a. Each SPECIES is correlated with PLATE TECTONICS by zero to many PLATE TECTONICS-SPECIES associations.
   b. Each PLATE TECTONICS-SPECIES association correlates PLATE TECTONICS with exactly one SPECIES.

2. SPECIES <> PLATE TECTONICS-SPECIES
   a. Each SPECIES (subspecies only) documents zero to many PLATE TECTONICS-SPECIES associations.
   b. Each PLATE TECTONICS-SPECIES association is documented by zero to many SPECIES (subspecies only).

3. PLATE TECTONICS <> PLATE TECTONICS-SPECIES
   a. Each PLATE TECTONICS is correlated with SPECIES by zero to many PLATE TECTONICS-SPECIES associations.
   b. Each PLATE TECTONICS-SPECIES association correlates SPECIES with exactly one PLATE TECTONICS.
4. SPECIMEN <> PLATE TECTONICS-SPECIES
   a. Each SPECIMEN documents zero to many PLATE TECTONICS-SPECIES associations.
   b. Each PLATE TECTONICS-SPECIES association is documented by zero to many SPECIMENs.

5. PUBLICATION <> PLATE TECTONICS-SPECIES
   a. Each PUBLICATION documents zero to many PLATE TECTONICS-SPECIES associations.
   b. Each PLATE TECTONICS-SPECIES association is documented by zero to many PUBLICATIONs.

6. SPECIES <> PLATE TECTONICS-GENUS
   a. Each SPECIES documents zero to many PLATE TECTONICS-GENUS associations.
   b. Each PLATE TECTONICS-GENUS association is documented by zero to many SPECIES.

7. GENUS <> PLATE TECTONICS-GENUS
   a. Each GENUS is correlated with PLATE TECTONICS by zero to many PLATE TECTONICS-GENUS associations.
   b. Each PLATE TECTONICS-GENUS association correlates PLATE TECTONICS with exactly one GENUS.

8. PLATE TECTONICS <> PLATE TECTONICS-GENUS
   a. Each PLATE TECTONICS is correlated with GENUS by zero to many PLATE TECTONICS-GENUS associations.
   b. Each PLATE TECTONICS-GENUS association correlates GENUS with exactly one PLATE TECTONICS.

9. SPECIMEN <> PLATE TECTONICS-GENUS
   a. Each SPECIMEN documents zero to many PLATE TECTONICS-GENUS associations.
   b. Each PLATE TECTONICS-GENUS association is documented by zero to many SPECIMENs.

10. PUBLICATION <> PLATE TECTONICS-GENUS
    a. Each PUBLICATION documents zero to many PLATE TECTONICS-GENUS associations.
    b. Each PLATE TECTONICS-GENUS association is documented by zero to many PUBLICATIONs.