

**BASELINE ASSESSMENT OF THE INVENTORY OF
VERTEBRATES AND
VASCULAR PLANTS OF
THE GRAND CANYON-PARASHANT NATIONAL MONUMENT:
ANNUAL REPORT, 30 DECEMBER 2004**

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EXECUTIVE SUMMARY

The overall goal of this project is to conduct data mining activities related to the occurrence of vertebrates and vascular plants in that portion of the Grand Canyon-Parashant National Monument (PARA) managed by Lake Mead National Recreation Area (LMNRA) in northwestern Arizona, and to review and update according to standard NPS quality assurance procedures the NPSpecies and NatureBib databases for this park unit. This is being accomplished through achievement of six objectives:

1. To conduct data mining activities related to vertebrates and vascular plants at Grand Canyon-Parashant National Monument, including review of scientific literature, review of the LAME library, review of the LAME NPSpecies and NatureBib databases, searches of on-line museum databases, limited physical searches of museums with known specimens but no electronic files, and review of files located at the BLM, Arizona Strip Field Office.
2. Update the NPSpecies database for PARA. Update the species list and checklist fields of the NPSpecies database. Populate the NPSpecies database with species occurrence data including bibliographic references (linking species to references) and physical voucher specimens. Complete certification of the NPSpecies database for vertebrate and vascular plant taxa at PARA.
3. Populate the NatureBib database with bibliographic information related to vertebrates and vascular plants at PARA.
4. Document existing databases (hard copy or electronic) in the Dataset Catalog (metadata) database.
5. Develop a list of documented and potentially occurring species of vertebrates and vascular plants.
6. Determine the level of documentation (percentage of species estimated to occur that are documented as present through the scientific literature or voucher specimen) related to the occurrence of vertebrates and vascular plants at PARA.

The project has been initiated. LES met with Kristine Heister and Kari Yanskey in St. George on 14 July 2004. They discussed the project structure, goals, and schedules, and listed which databases may provide information, as well as which museums would be

visited by LES during this project (including LAME, BYU, ASU, and BLM – St. George). RAP and LES subsequently applied for and received a LAME NPS collecting permit to pursue this project.

LES has conducted numerous searches for PARA-LM species data, and has compiled a vastly expanded preliminary list of species reported from the region, with more than 150 plant species, 116 bird species, 48 mammal species reported from the PARA area thus far. The literature and databases used in these data searches include a large array of on-line plant databases, particularly through Arizona State University, and incorporation of vertebrate distribution data from various surveys and literature from the Arizona Strip region. The on-line plant databases appear to be relatively comprehensive for this region, with relatively high quality locality data available. In contrast, little on-line synthesis of vertebrate specimen data appears to be available for PARA, and LES has compiled data from individual reports, spot maps, and other data sources. Of all the vertebrate groups, mammal and bird data appear to be well-reported, while fish and herpetofaunal data appear to be weakly represented in the literature.

Efforts are underway to have LES learn the NPS software programs necessary to accomplish objectives 2-4. The training sessions are planned for mid-January 2005, pending scheduling discussions with LMNRA staff. Completion of Objective 1 museum site visits is scheduled for January-March 2005, and includes inspection of collections at: LMNRA; Northern Arizona University; the Museum of Northern Arizona; Northern Arizona University; the Bureau of Land Management office in St. George, UT; Dixie College; and Brigham Young University, Provo, UT. We anticipate completion of these visits by 15 May 2005, but more time may be needed if large amounts of vertebrate materials are encountered.

INTRODUCTION

A Specimen-based Inventory

Inventories of existing specimens are a prerequisite for inventories of regional landscapes, and serve as a baseline on which to add future species distribution data. We are compiling an inventory of existing specimen data from databases and collections of vascular plants and vertebrates of the Lake Mead National Recreation Area's (LMNRA) administrative portion of Grand Canyon-Parashant National Monument (PARA).

The Grand Canyon-Parashant National Monument (PARA) was created by presidential proclamation on January 11, 2000. The unit encompasses approximately 1,014,000 acres of land that are being jointly managed by the NPS and BLM. The NPS will retain primary authority over approximately 200,000 acres of land that are still currently within the boundary of Lake Mead National Recreation Area (LAME) and generally referred to as the Shivwits Plateau. *The scope of this project applies only to those lands over which the NPS retains primary authority.* The monument is the junction of two physiographic ecoregions: the Mojave Desert and the Colorado Plateau. The western margin of the Shivwits Plateau marks the boundary between the Sonoran/Mojave/Great Basin floristic provinces to the west and south, and the Colorado Plateau province to the northeast. The intersection of these biomes is a distinctive feature of this park. A diverse wildlife community also is present including a number of threatened and endangered species such as the California condor, desert tortoise, and the southwestern willow flycatcher.

Within the NPS, a total of 270 National Park units (parks, monuments, recreation areas, historic sites, etc.) have been identified as having significant natural resources, and these were divided into 32 groups or "networks" based on geographical proximity and similarity of habitat types. In fiscal year 2000, the National Park Service (NPS), Mojave Inventory and Monitoring Network received funding for inventory of vertebrates and vascular plants within network parks, including PARA. In January 2003, PARA was added to the National Inventory and Monitoring Program databases, including NPSpecies and NatureBib as a separate NPS unit. Currently, no information is present in either database however, significant information exists within the LAME NPSpecies and

NatureBib databases and with the Bureau of Land Management (BLM), Arizona Strip Field Office. The general goal of this project is to conduct data mining activities related to the occurrence of vertebrates and vascular plants at PARA and to review and update according to standard NPS quality assurance procedures the NPSpecies and NatureBib databases for this park unit.

Objectives

The specific tasks associated with this project include:

1. To conduct data mining activities related to vertebrates and vascular plants at Grand Canyon-Parashant National Monument, including review of scientific literature, review of the LAME library, review of the LAME NPSpecies and NatureBib databases, searches of on-line museum databases, limited physical searches of museums with known specimens but no electronic files, and review of files located at the BLM, Arizona Strip Field Office.
2. Update the NPSpecies database for PARA. Update the species list and checklist fields of the NPSpecies database. Populate the NPSpecies database with species occurrence data including bibliographic references (linking species to references) and physical voucher specimens. Complete certification of the NPSpecies database for vertebrate and vascular plant taxa at PARA.
3. Populate the NatureBib database with bibliographic information related to vertebrates and vascular plants at PARA.
4. Document existing databases (hard copy or electronic) in the Dataset Catalog (metadata) database.
5. Develop a list of documented and potentially occurring species of vertebrates and vascular plants.
6. Determine the level of documentation (percentage of species estimated to occur that are documented as present through the scientific literature or voucher specimen) related to the occurrence of vertebrates and vascular plants at PARA.

METHODS

Study Areas

Literature searches related to vertebrates and vascular plants are being conducted in the databases and libraries of the University of California, University of Nevada, Arizona State University, and Brigham Young University, as well as other collections and universities identified through initial data mining efforts. Efforts include searches of the LAME resource management library and NatureBib database. Additionally, searches for existing information (scientific literature, gray literature such as species lists and management reports, databases, etc.) in hard copy and/or electronic format are being conducted at PARA main offices (St. George, UT) and the BLM, Arizona Strip Field Office (St. George, UT). Information documenting existing data will be placed into the NPS Dataset Catalog database and will represent at least minimally FGDC (Federal Geodetic Data Commission) compliant metadata standards for the data sets identified.

Searches of on-line museum databases for vascular plant specimens are being conducted at the University of California, Berkeley, Jepson Herbarium, University of California, Riverside Herbarium, New York Botanical Garden, and Arizona State University.

Searches of on-line museum databases for vertebrate specimens are being conducted at Arizona State University, University of California, Berkeley, Museum of Vertebrate Zoology, California Academy of Sciences, New Mexico Museum of Southwestern Biology, Cornell University, Laboratory of Ornithology, University of Washington, Burke Museum and the Carnegie Museum of Natural History. In addition, we will include data from a recently compiled Brigham Young University plant specimen database recently received by PARA staff. A searchable database of all registered herbariums is located at <http://sciweb.nybg.org/science2/ih/searchih.html>.

Physical searches for existing vascular plant voucher specimens are being conducted through the University of Arizona compilation of Arizona plant collections data, which includes all state university collections in Arizona, including Arizona State University, Northern Arizona University, and the University of Arizona. In addition we are searching for databases from the University of Nevada at Las Vegas, the University of Utah, Utah

State University, and other museums and collections in the region. Physical searches for existing vertebrate voucher specimens are being conducted at the Monte L. Bean Museum at Brigham Young University, Northern Arizona University, the Museum of Northern Arizona, and the Barrick Museum at the University of Nevada at Las Vegas, as well as other collections. Several small academic institutions are located near PARA and are being contacted to assess the availability of records including, Dixie College (St. George, UT) and Southern Utah State College (Cedar City, UT). Efforts are beginning with a search of the LAME NPSpecies database for voucher specimens collected on lands within PARA and known specimen locations.

A list of museums to be physically searched in the future for known or potentially occurring specimens from PARA are being developed in conjunction with PARA and LAME staff after review of the LAME NPSpecies database.

Procedures

Complete literature citations with annotations are being provided in a final report including a list of key words that were searched for each taxon (i.e. birds, reptiles, amphibians, mammals, fish, plants). The bibliography are being accompanied by annotations including the species cited in each citation and where in the park they occur. Land ownership are being designated at NPS or BLM. Data consistent with the field elements from the NatureBib database are being documented for all references identified. For information, hard copy or electronic, representing data an entry are being made into the Dataset Catalog database. Information entered will meet the requirements of minimally compliant FGDC metadata. Initial efforts to document existing datasets will begin with review of the LAME Dataset Catalog database.

Accession lists are being perused for voucher specimens at locations described under the previous section. Lists of vouchered species, and all pertinent accession data are being provided for each vouchered specimen that is located. Government records and gray literature are being searched for evidence of species verification. Data consistent with the field elements from the voucher or observation portion of NPSpecies database and are

being requested and/or collected from the data sources. These field elements are being provided by the Mojave I&M Network Data Manager. This will include noting any type specimens identified.

Experts in various fields (i.e., by taxon) and NPS and BLM staff are being interviewed as species lists are developed. In addition specialists are being asked to provide insights regarding the potential species that could occur in the Grand Canyon-Parashant National Monument but are not accounted for by vouchered specimens as time permits. Field guides, NPS observation cards and other published literature will also be used to generate the “potential” species list.

All species occurrence information will be entered into the NPS NatureBib and NPSpecies databases after training of LES in early 2005. NPSpecies is a relational database that contains documented checklists of species that occur in each NPS unit. The checklist component includes fields to describe Park-Status, Abundance, Residency, Nativity, and Cultivation of species in parks. The documentation component currently includes bibliographic references (cataloged in the NPS natural resource bibliography, NatureBib but linked to individual species in the NPSpecies database), voucher-specimens stored at various NPS and non-NPS repositories, and observation records, again from NPS and non-NPS sources. NPSpecies is the primary tool to store all species occurrence information from NPS units that is acquired through the NPS Biological Inventories Project, the I&M Program in general and any other avenue as applicable.

All data sources that have the original, raw voucher-specimen or observation records that may have been collected within current NPS boundaries are being considered in this effort. Data sources that have “snapshots” or copies of data for which they are not the data stewards will not be considered. Data records of any date are being included in this effort. NPSpecies has the capabilities to accommodate documentation for species that are “historic” or “unconfirmed” in a park unit.

Vouchers and observations are the 2 fundamental types of data that document species occurrence. Observations are sightings (visual, sound, etc.) where the date, location and collector/observer (at a minimum) of the sighting are permanently documented and archived. Vouchers are observations with the addition that a physical part of the species (whole or partial specimen, photo, sound recording, etc.) is collected and permanently archived along with the permanent documentation of date, location, collector/observer, etc. This effort will focus on the acquisition of voucher records and observational data published in the scientific literature.

A master species list is being developed based on the above information. The species list will minimally provide the species scientific name, common name, status (present or potentially occurring), land ownership (BLM, NPS, both) and level of documentation (for species designated at present; e.g., observation and reference, voucher).

Analyses

Minimal analysis is required for this project. The percentage of species on the master species list that are documented either through the scientific literature or presence of a voucher specimen are being calculated and used to provide an index of the extent to which PARA has been inventoried and will guide future inventory efforts. At the completion of data entry into the NPSpecies database the process of certification are being completed for the database. This process certifies that the information contained in the database is accurate to the best of the PI's knowledge.

RESULTS TO DATE

Projecct Initiation

LES visited the PARA office in St. George to meet with Kristine Heister and Kari Yanskey on 14 July 2004. They discussed the project structure, goals, and schedules, and listed which databases may provide information, as well as which museums would be visited by LES during this project (including LAME, BYU, ASU, and BLM – St. George). RAP and LES subsequently applied for and received a LAME NPS collecting permit to pursue this project.

Objective 1: Review, search, and collect data on vascular plant and vertebrate specimens from the scientific literature, on-line sources from NPS, BLM and selected museum databases, and conduct physical searches of specimens from selected museums.

We have conducted searches of databases from numerous museums (Table 1). To date we have assembled specimen information on more than 1,710 plant specimens that may have been collected in the PARA area from the LMNRA, ASU and other databases, involving more than 150 plant species. We have also gathered data from the literature indicating that at least 48 mammal species and 116 bird species have been detected in the PARA area. The existing species list for PARA in its entirety (Grand Canyon Wildlands Council 2000) is attached in Appendix A.

Table 1: Websites and information obtained for the PARA-LM data-mining project as of 10 Sept. 2004.

Website	Web Search Info.
ucjeps.berkeley.edu	No Mohave collections data found yet, sent email seeking info; Dear Larry Stevens: Only our California specimens are databased, so we have no way of accessing information on our holdings from Arizona (other than slogging through our 2 million specimens). We would certainly like to rectify this condition, but are far from having the resources to do so. With apologies for the belated response, Dr. Barbara Ertter, Administrative Curator University and Jepson Herbaria University of California at Berkeley I am seeking information on any plant specimens in your collections that were collected in Mohave County, AZ, as part of a National Park Service inventory of Lake Mead National Recreation Area. Is there any way to access a list of specimens in your collections that were collected from Mohave County? Also, do you know of any collections of plants or vertebrates from Mohave County? Lawrence E. Stevens, PhD
www.nybg.org	Intermountain Flora with 53 specimens; Bryophytes Database 1; North American Gymnosperms database 1
mgd.nacse.org	Data found
bin/hyperSQL_gateway	No Mohave collections data found, sent email seeking info
seintet.asu.edu	Accessed data for numerous specimens from ASU and NAU collections

brimsa.huh.harvard.edu/cmss-wb/specimen_index	No data found
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Objective 2: Update and populate the NPS database for species listing and checklist development, linking species records to references and physical voucher specimens, as well as completing NPSpecies database certification for added data.

LES will visit LAME office in January 2005 to complete training in the use of these databases.

Objective 3: Populate the NatureBib database with bibliographic information related to vertebrates and vascular plants at PARA.

All references for plants and vertebrates are being compiled, and the references are being prepared for entry into the NatureBib database. We are making extensive use of Arizona plant texts, as well as Minckley (1973), Hoffmeister (1986), and other regional vertebrate texts, and the citations listed therein.

Objective 4: Document existing databases (hard copy or electronic) in the NPS Dataset Catalog (metadata) database.

We are preparing a list of all databases searched for this objective (Table 1).

Objective 5: Develop a list of documented and potentially occurring species of vertebrates and vascular plants.

We present a draft list of the plant and vertebrate species from the Grand Canyon-Parashant region reported in Minckley (1973), U.S. National Park Service (1981), Hoffmeister (1986), U.S. Bureau of Land Management (1990, 1992), Brown (1994), and Grand Canyon Wildlands Council (2000, 2002; Appendix A). This list is being verified and refined through the course of this project. We are still searching for available data on fish and herpetofauna of PARA.

Objective 6: Determine the level of documentation (percentage of species estimated to occur that are documented as present through the scientific literature or voucher specimen) related to the occurrence of vertebrates and vascular plants at PARA.

This objective are being pursued near the completion of the project, when sufficient data are available to make this estimate.

NPS COMMITMENTS

For this project, the National Park Service has agreed to:

1. Provide funding to support this project.
2. Provide general project oversight and review of draft and final products.
3. Provide access to park staff for interviews
4. Provide to investigators known park datasets, including the LAME NPSpecies, NatureBib and Dataset Catalog databases, and access to park libraries, permit files and other sources of information related to the occurrence of vertebrates and vascular plants at PARA.
5. Provide the Mojave I&M Network modified desktop version of NPSpecies for entry of data by investigators.
6. Provide technical assistance to investigators related to the entry of data into the NPSpecies, NatureBib and Dataset Catalog databases.
7. Provide working space for investigators during visits to park and Bureau of Land Management offices.
8. Facilitate communication between investigators and Bureau of Land Management staff at PARA to acquire access to files, literature, etc. related to the occurrence of vertebrates and vascular plants at PARA.

We will need all of this assistance as the project is fully started to accomplish the six objectives, and we will request assistance during the fall of 2004 for points 3-8 (above).

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**APPENDIX A:
VASCULAR PLANT SPECIES REPORTED FROM
THE GRAND CANYON-PARASHANT REGION**

PLANTS

Family	Genus	Species	Author
Aceraceae	<i>Acer</i>	<i>negundo</i>	L.
Agavaceae	<i>Agave</i>	<i>utahensis</i>	Engelm.
Amaranthaceae	<i>Amaranthus</i>	<i>blitoides</i>	Wats.
Amaranthaceae	<i>Amaranthus</i>	<i>fimbriatus</i>	(Torr.) Benth.
Amaryllidaceae	<i>Allium</i>	<i>acuminatum</i>	Hook.
Amaryllidaceae	<i>Allium</i>	<i>bisceptrum</i>	Wats.
Anacardiaceae	<i>Rhus</i>	<i>trilobata</i>	Nutt. ex T. & G.
Apiaceae	<i>Cymopterus</i>	<i>multinervatus</i>	(Coult. & Rose) Tides.
Apiaceae	<i>Cymopterus</i>	<i>purpurascens</i>	(Gray) Jones
Apiaceae	<i>Lomatium</i>	<i>macdougali</i>	Coult. & Rose
Apiaceae	<i>Lomatium</i>	<i>nevadense</i> var. <i>parishii</i>	(Wats.) Coult. & Rose (Coult. & Rose) Jeps.
Apocynaceae	<i>Amsonia</i>	<i>tomentosa</i>	Torr. & Frem.
Apocynaceae	<i>Apocynum</i>	<i>sibiricum</i> var. <i>salignum</i>	Jacq. (Greene) Fern.
Asclepiadaceae	<i>Asclepias</i>	<i>asperula</i>	(Decne.) Woodson
Asclepiadaceae	<i>Asclepias</i>	<i>subverticillata</i>	(Gray) Vail
Aspidiaceae	<i>Woodsia</i>	<i>oregana</i>	Eat.
Asteraceae	<i>Agoseris</i>	<i>glauca</i> var. <i>parviflora</i>	(Pursh) Greene (Nutt.) Rydb.
Asteraceae	<i>Artemisia</i>	<i>bigelovii</i>	Gray
Asteraceae	<i>Artemisia</i>	<i>frigida</i>	Willd.
Asteraceae	<i>Artemisia</i>	<i>tridentata</i>	Nutt.
Asteraceae	<i>Aster</i>	<i>adscendens</i>	Lindl. In Hook.
Asteraceae	<i>Baileya</i>	<i>multiradiata</i>	Harv. & Gray
Asteraceae	<i>Brickellia</i>	<i>californica</i>	(Torr. & Gray) Gray
Asteraceae	<i>Brickellia</i>	<i>longifolia</i>	Wats.
Asteraceae	<i>Chaenactis</i>	<i>douglasii</i>	(Hook.) Hook. & Arn.
Asteraceae	<i>Chrysothamnus</i>	<i>depressus</i>	Nutt.
Asteraceae	<i>Chrysothamnus</i>	<i>nauseosus</i>	(Pall.) Britton
Asteraceae	<i>Cirsium</i>	<i>arizonicum</i>	(Gray) Petrak
Asteraceae	<i>Cirsium</i>	<i>neomexicanum</i>	Gray
Asteraceae	<i>Conyza</i>	<i>canadensis</i>	(L.) Cronq.
Asteraceae	<i>Crepis</i>	<i>intermedia</i>	Gray
Asteraceae	<i>Erigeron</i>	<i>divergens</i>	Torr. & Gray
Asteraceae	<i>Erigeron</i>	<i>pumilus</i> ssp. <i>concinoides</i>	Nutt. Cronq.
Asteraceae	<i>Erigeron</i>	<i>utahensis</i>	Gray
Asteraceae	<i>Gutierrezia</i>	<i>microcephala</i> <i>microcephala</i>	(DC.) Gray Greene
Asteraceae	<i>Helianthus</i>	<i>ciliaris</i>	DC.
Asteraceae	<i>Hymenopappus</i>	<i>lugens</i>	Greene

Asteraceae	<i>Hymenoxys</i>	<i>acaulis</i> var. <i>arizonica</i>	(Pursh) (Greene) Parker
Asteraceae	<i>Hymenoxys</i>	<i>Cooperi</i>	(Gray) Cockerell
Asteraceae	<i>Hymenoxys</i>	<i>richardsonii</i> var. <i>floribunda</i>	(Hook.) Cockerell (Gray) Parker
Asteraceae	<i>Laphamia</i>	<i>congesta</i>	Jones
Asteraceae	<i>Leucelene</i>	<i>ericoides</i>	(Torr.) Greene
Asteraceae	<i>Machaeranthera</i>	<i>canescens</i>	(Pursh) Gray
Asteraceae	<i>Porophyllum</i>	<i>gracile</i>	Benth.
Asteraceae	<i>Psilostrophe</i>	<i>sparsiflorus</i>	(Gray) Nels.
Asteraceae	<i>Sanvitalia</i>	<i>abertii</i>	Gray
Asteraceae	<i>Senecio</i>	<i>longilobus</i>	Benth
Asteraceae	<i>Senecio</i>	<i>multilobatus</i>	Torr. & Gray
Asteraceae	<i>Solidago</i>	<i>Ssarsiflora</i>	Gray
Asteraceae	<i>Taraxacum</i>	<i>officinale</i>	Wiggers
Asteraceae	<i>Thelesperma</i>	<i>subnudum</i>	Gray
Asteraceae	<i>Townsendia</i>	<i>exscapa</i>	(Richards) Porter
Asteraceae	<i>Tragopogon</i>	<i>dubius</i>	Scop.
Asteraceae	<i>Viguiera</i>	<i>multiflora</i>	(Nutt.) Blake
Berberidaceae	<i>Berberis</i>	<i>fremontii</i>	Torr.
Boraginaceae	<i>Cryptantha</i>	<i>confertiflora</i>	(Greene) Pays.
Boraginaceae	<i>Cryptantha</i>	<i>gracilis</i>	Osterh.
Boraginaceae	<i>Lappula</i>	<i>occidentalis</i>	(Wats.) Greene
Boraginaceae	<i>Lithospermum</i>	<i>incisum</i>	Lehm.
Brassicaceae	<i>Arabis</i>	<i>gracilis</i>	Greene
Brassicaceae	<i>Arabis</i>	<i>perennans</i>	Wats.
Brassicaceae	<i>Capsella</i>	<i>bursa-pastoris</i>	(L.) Medic.
Brassicaceae	<i>Descurainia</i>	<i>obtusa</i>	(Greene) O.E. Schultz
Brassicaceae	<i>Draba</i>	<i>cuneifolia</i>	Nutt. ex T. & G.
Brassicaceae	<i>Erysimum</i>	<i>repandum</i>	L.
Brassicaceae	<i>Lepidium</i>	<i>montanum</i>	Nutt.
Brassicaceae	<i>Lesquerella</i>	<i>intermedia</i>	(Wats.) Heller
Brassicaceae	<i>Sisymbrium</i>	<i>ambiguum</i>	(Wats.) Pays.
Brassicaceae	<i>Stanleya</i>	<i>pinnata</i>	(Pursh) Britton
Brassicaceae	<i>Streptanthus</i>	<i>cordatus</i>	Nutt.
Brassicaceae	<i>Thelypodium</i>	<i>wrightii</i>	Gray
Cactaceae	<i>Coryphantha</i>	<i>vivipara</i> var. <i>arizonica</i>	(Nutt.) Britt. & Rose (Engelm.) W.T. Marshall
Cactaceae	<i>Echinocereus</i>	<i>engelmannii</i> var. <i>chrysocentrus</i>	(Parry) Lem. (Engelm.) Egelm. ex Rumpler
Cactaceae	<i>Echinocereus</i>	<i>triglochidiatus</i> var. <i>melanacanthus</i>	Engelm. (Engelm.) L. Benson
Cactaceae	<i>Echinocereus</i>	<i>triglochidiatus</i> var. <i>mohavensis</i>	Engelm. (Engelm. & Bigel.) Benson
Cactaceae	<i>Opuntia</i>	<i>acanthocarpa</i> var. <i>coloradensis</i>	Engelm. & Bigel. Benson

Cactaceae	<i>Opuntia</i>	<i>macrorhiza</i>	Engelm.
Cactaceae	<i>Opuntia</i>	<i>phaeacantha</i> var. <i>major</i>	Engelm. Engelm.
Cactaceae	<i>Opuntia</i>	<i>whipplei</i> var. <i>whipplei</i>	Engelm. & Bigel
Cactaceae	<i>Pediocactus</i>	<i>simpsonii</i>	(Engelm.) Britt. & Rose
Capparaceae	<i>Cleome</i>	<i>lutea</i>	Hook.
Capparaceae	<i>Cleome</i>	<i>serrulata</i>	Pursh
Caprifoliaceae	<i>Symphoricarpos</i>	<i>longiflorus</i>	Gray
Caprifoliaceae	<i>Symphoricarpos</i>	<i>parishii</i>	Rydb.
Caryophyllaceae	<i>Arenaria</i>	<i>aberrans</i>	Jones
Caryophyllaceae	<i>Arenaria</i>	<i>macradenia</i>	Wats.
Caryophyllaceae	<i>Arenaria</i>	<i>macradenia</i>	Wats.
Celastraceae	<i>Mortonia</i>	<i>utahensis</i>	(Cov.) A. Nels.
Chenopodiaceae	<i>Atriplex</i>	<i>canescens</i>	(Pursh) Nutt.
Chenopodiaceae	<i>Chenopodium</i>	<i>album</i>	L.
Chenopodiaceae	<i>Chenopodium</i>	<i>berlandieri</i>	Moq.
Chenopodiaceae	<i>Monolepis</i>	<i>nuttalliana</i>	(Schult.) Greene
Convolvulaceae	<i>Convolvulus</i>	<i>arvensis</i>	L.
Cupressaceae	<i>Juniperus</i>	<i>osteosperma</i>	(Torr.) Little
Cyperaceae	<i>Carex</i>	<i>occidentalis</i>	Bailey
Elaeagnaceae	<i>Sherpherdia</i>	<i>rotundifolia</i>	Parry
Ephedraceae	<i>Ephedra</i>	<i>nevadensis</i>	Wats.
Ericaceae	<i>Arctostaphylos</i>	<i>pungens</i>	HBK.
Euphorbiaceae	<i>Euphorbia</i>	<i>albomarginata</i>	T. & G.
Euphorbiaceae	<i>Euphorbia</i>	<i>incisa</i>	Engelm.
Fabaceae	<i>Astragalus</i>	<i>amphioxys</i>	Gray
Fabaceae	<i>Astragalus</i>	<i>calycosus</i> var. <i>scaposus</i>	Torr. (Gray) Jones
Fabaceae	<i>Astragalus</i>	<i>humistratus</i>	Gray
Fabaceae	<i>Astragalus</i>	<i>lentiginosus</i> var. <i>palans</i>	Dougl. Jones
Fabaceae	<i>Astragalus</i>	<i>lentiginosus</i> var. <i>vitreus</i>	Dougl. Barneby
Fabaceae	<i>Astragalus</i>	<i>oophorus</i> var. <i>caulescens</i>	Wats. Jones
Fabaceae	<i>Calliandra</i>	<i>humilis</i> var. <i>reticulata</i>	Benth. Benson
Fabaceae	<i>Dalea</i> (<i>Petalostemon</i>)	<i>candida candidum</i>	(Michx.) Willd. Michx.
Fabaceae	<i>Dalea</i> (<i>Petalostemon</i>)	<i>searlsiae searlsiae</i>	(Gray) Barneby Gray
Fabaceae	<i>Desmanthus</i>	<i>cooleyi</i>	(Eaton) Trel.
Fabaceae	<i>Lathyrus</i>	<i>eucosmus</i>	Butters & St. John
Fabaceae	<i>Lotus</i>	<i>wrightii</i>	(Gray) Greene
Fabaceae	<i>Lupinus</i>	<i>argenteus</i>	Pursh.
Fabaceae	<i>Lupinus</i>	<i>hillii</i>	Greene
Fabaceae	<i>Lupinus</i>	<i>kingii</i>	Wats.
Fabaceae	<i>Melilotus</i>	<i>officinalis</i>	(L.) Lam.
Fabaceae	<i>Psorelea</i>	<i>tenuiflora</i>	Pursh
Fabaceae	<i>Psorothamnus</i> (<i>Dalea</i>)	<i>fremontii</i> var. <i>fremontii</i>	(Torr.) Barneby Torr. ex Gray
Fabaceae	<i>Robinia</i>	<i>neomexicana</i>	Gray

Fabaceae	<i>Vicia</i>	<i>exigua</i>	Nutt. in T. & G.
Fagaceae	<i>Quercus</i>	<i>gambelii</i>	Nutt.
Fagaceae	<i>Quercus</i>	<i>turbinella</i>	Greene
Fagaceae	<i>Quercus</i>	<i>undulata</i>	Torr.
Fouquieriaceae	<i>Fouquieria</i>	<i>splendens</i>	Engelm.
Fumariaceae	<i>Corydalis</i>	<i>aurea</i>	Willd.
Garryaceae	<i>Garrya</i>	<i>flavescens</i>	Wats.
Gentianaceae	<i>Frasera</i>	<i>albomarginata</i>	Wats.
Geraniaceae	<i>Geranium</i>	<i>caespitosum</i>	Jones
Geraniaceae	<i>Geranium</i>	<i>richardsonii</i>	Fisch. & Trautv.
Hydrophyllaceae	<i>Phacelia</i>	<i>fremontii</i>	Torr.
Hydrophyllaceae	<i>Phacelia</i>	<i>ivesiana</i>	Torr.
Hydrophyllaceae	<i>Phacelia</i>	<i>palmeri</i>	Torr.
Lamiaceae	<i>Marrubium</i>	<i>vulgare</i>	L.
Lamiaceae	<i>Moldavica</i>	<i>parviflora</i>	(Nutt.) Britton
Liliaceae	<i>Calochortus</i>	<i>nuttallii</i>	Torr.
Liliaceae	<i>Fritillaria</i>	<i>atropurpurea</i>	Nutt.
Liliaceae	<i>Leucocrinum</i>	<i>montanum</i>	Nutt. ex A. Gray
Linaceae	<i>Linum</i>	<i>aristatum</i>	Engelm.
Linaceae	<i>Linum</i>	<i>lewisii</i>	Pursh
Loasaceae	<i>Mentzelia</i>	<i>albicaulis</i>	(Hook.) T. & G.
Loasaceae	<i>Mentzelia</i>	<i>pumila</i>	(Nutt.) Torr. & Gray
Malvaceae	<i>Eremalche</i>		
Malvaceae	<i>Malvastrum</i>	<i>exilis exile</i>	(Gray) Greene Gray
Malvaceae	<i>Malva</i>	<i>neglecta</i>	Wallr.
Malvaceae	<i>Sphaeralcea</i>	<i>ambigua</i>	Gray
Malvaceae	<i>Sphaeralcea</i>	<i>grossulariaefolia</i>	(Hook. & Arn.) Rydb.
Nyctaginaceae	<i>Oxybaphus</i>	<i>coccineus</i>	Torr.
Oleaceae	<i>Forestiera</i>	<i>neomexicana</i>	Gray
Oleaceae	<i>Fraxinus</i>	<i>cuspidata</i> var. <i>macropetala</i>	Torr. (Eastw.) Rehder
Oleaceae	<i>Fraxinus</i>	<i>pennsylvanica</i> ssp. <i>velutina</i>	Marshall (Torr.) G. N. Miller
Oleaceae	<i>Menodora</i>	<i>scabra</i>	Gray
Onagraceae	<i>Calylophus</i>	<i>hartwegii</i> var. <i>hartwegii</i>	(Benth.) Raven
Onagraceae	<i>Calylophus</i>	<i>hartwegii</i> ssp. <i>lavandulifolius</i>	(Benth.) Raven (T. & G.) Towne & Raven
Onagraceae	<i>Epilobium</i>	<i>hornemannii</i>	Reichenb.
Onagraceae	<i>Gayophytum</i>	<i>ramosissimum</i>	T. & G.
Onagraceae	<i>Oenothera</i>	<i>flava</i>	(Nels.) Garrett
Orobanchaceae	<i>Orobanche</i>	<i>fasciculata</i>	Nutt.
Pinaceae	<i>Pinus</i>	<i>edulis</i>	Engelm.
Pinaceae	<i>Pinus</i>	<i>monophylla</i>	Torr. & Frem.
Pinaceae	<i>Pinus</i>	<i>ponderosa</i>	Laws.
Plantaginaceae	<i>Plantago</i>	<i>purshii</i> var. <i>oblonga</i>	R. & S. (Morris) Shinnars
Poaceae	<i>Agropyron</i>	<i>cristatum</i>	(L.) Gaertn.

Poaceae	<i>Agropyron</i>	<i>spicatum</i>	(Pursh) Scribn. & Smith
Poaceae	<i>Agropyron</i>	<i>trachycaulum</i>	(Link) Malte
Poaceae	<i>Agrostis</i>	<i>semiverticillata</i>	(Forsk.) C. Chr.
Poaceae	<i>Aristida</i>	<i>arizonica</i>	Vasey
Poaceae	<i>Aristida</i>	<i>fendleriana</i>	Steud.
Poaceae	<i>Bouteloua</i>	<i>curtipendula</i>	(Michx.) Torr.
Poaceae	<i>Bromus</i>	<i>marginatus</i>	Nees
Poaceae	<i>Bromus</i>	<i>rubens</i>	L.
Poaceae	<i>Bromus</i>	<i>tectorum</i>	L.
Poaceae	<i>Poa</i>	<i>pratensis</i>	L.
Poaceae	<i>Setaria</i>	<i>macrostachya</i>	HBK.
Poaceae	<i>Stipa</i>	<i>comata</i>	Trin. & Rupr.
Poaceae	<i>Trichachne</i>	<i>californica</i>	(Benth.) Chase
Poaceae	<i>Tridens</i>	<i>muticus</i>	(Torr.)
Polemoniaceae	<i>Gilia</i>	<i>longiflora</i>	(Torr.) G. Don
Polemoniaceae	<i>Gilia</i>	<i>ophthalmoides</i>	Brand.
Polemoniaceae	<i>Gilia</i>	<i>transmontana</i>	(Mason & A. Grant) A. & V. Grant
Polemoniaceae	<i>Ipomopsis</i>	<i>aggregata ssp. aggregata</i>	(Pursh) V. Grant
Polemoniaceae	<i>Phlox</i>	<i>austromontana var. densa</i>	Cov. (Brand.) Wherry
Polemoniaceae	<i>Phlox</i>	<i>stansburyi</i>	(Torr.) Heller
Polemoniaceae	<i>Phlox</i>	<i>woodhousei</i>	(Gray) E. Nels.
Polygalaceae	<i>Polygala</i>	<i>subspinoso</i>	Wats.
Polygonaceae	<i>Eriogonum</i>	<i>alatum</i>	Torr.
Polygonaceae	<i>Eriogonum</i>	<i>deflexum</i>	Torr.
Polygonaceae	<i>Eriogonum</i>	<i>heermannii</i>	Dur. & Hilg.
Polygonaceae	<i>Eriogonum</i>	<i>jamesii</i>	Benth.
Polygonaceae	<i>Eriogonum</i>	<i>pharnaceoides</i>	Torr. in Sitgr.
Polygonaceae	<i>Eriogonum</i>	<i>racemosum</i>	Nutt.
Polygonaceae	<i>Eriogonum</i>	<i>simpsoni</i>	Benth.
Polygonaceae	<i>Eriogonum</i>	<i>umbellatum (aridum)</i>	Torr. (Stokes)
Polygonaceae	<i>Polygonum</i>	<i>aviculare</i>	L.
Polygonaceae	<i>Polygonum</i>	<i>sawatchense</i>	Small
Portulacaceae	<i>Portulaca</i>	<i>oleraceae</i>	L.
Pteridaceae	<i>Cheilanthes</i>	<i>feeii</i>	T. Moore
Pteridaceae	<i>Notholaena</i>	<i>cochisensis</i>	Goodd.
Pteridaceae	<i>Pellaea</i>	<i>truncata</i>	Goodd.
Ranunculaceae	<i>Aquilegia</i>	<i>chrysantha</i>	Gray
Ranunculaceae	<i>Delphinium</i>	<i>nelsoni</i>	Greene
Ranunculaceae	<i>Delphinium</i>	<i>scaposum</i>	Greene
Ranunculaceae	<i>Ranunculus</i>	<i>testiculatus</i>	Crantz.
Ranunculaceae	<i>Thalictrum</i>	<i>fendleri</i>	Engelm. ex Gray
Rhamnaceae	<i>Ceanothus</i>	<i>greggi</i>	Gray
Rosaceae	<i>Amelanchier</i>	<i>utahensis</i>	Koehne

Rosaceae	<i>Chamaebatiaria</i>	<i>millefolium</i>	(Torr.) Maxim.
Rosaceae	<i>Coleogyne</i>	<i>ramosissima</i>	Torr.
Rosaceae	<i>Cowania</i>	<i>mexicana</i> var. <i>stansburiana</i>	D. Don (Torr.) Jeps.
Rosaceae	<i>Fallugia</i>	<i>paradoxa</i>	(D. Don) Endl.
Rosaceae	<i>Prunus</i>	<i>virginiana</i>	L.
Rosaceae	<i>Rosa</i>	<i>stellata</i>	Wooton
Rubiaceae	<i>Galium</i>	<i>wrightii</i>	Gray
Rutaceae	<i>Ptelea</i>	<i>pallida</i>	Greene
Santalaceae	<i>Comandra</i>	<i>umbellata</i>	(L.) Nutt.
Saxifragaceae	<i>Heuchera</i>	<i>versicolor</i>	Greene
Saxifragaceae	<i>Ribes</i>	<i>cereum</i>	Dougl.
Scrophulariaceae	<i>Castilleja</i>	<i>chromosa</i>	A. Nels.
Scrophulariaceae	<i>Castilleja</i>	<i>linariaefolia</i>	Benth.
Scrophulariaceae	<i>Cordylanthus</i>	<i>parviflorus</i>	(Ferris) Wiggins
Scrophulariaceae	<i>Penstemon</i>	<i>barbatus</i>	(Cav.) Roth.
Scrophulariaceae	<i>Penstemon</i>	<i>bridgesii</i>	Gray
Scrophulariaceae	<i>Penstemon</i>	<i>eatonii</i>	Gray
Scrophulariaceae	<i>Penstemon</i>	<i>linarioides</i>	Gray
Scrophulariaceae	<i>Penstemon</i>	<i>nudiflorus</i>	Gray
Scrophulariaceae	<i>Penstemon</i>	<i>pachyphyllus</i> ssp. <i>congestus</i>	Gray (Jones) Keck
Scrophulariaceae	<i>Penstemon</i>	<i>palmeri</i>	Gray
Scrophulariaceae	<i>Penstemon</i>	<i>thompsoniae</i>	(Gray) Rydb.
Solanaceae	<i>Nicotiana</i>	<i>attenuata</i>	Torr.
Solanaceae	<i>Physalis</i>	<i>hederaefolia</i> var. <i>cordifolia</i>	Gray (Gray) Waterfall
Solanaceae	<i>Solanum</i>	<i>triflorum</i>	Nutt.
Verbenaceae	<i>Verbena</i>	<i>bracteata</i>	Lag. & Rodr.
Verbenaceae	<i>Verbena</i>	<i>gooddingii</i>	Briq.
Violaceae	<i>Viola</i>	<i>nuttallii</i>	Pursh

BIRDS

Family	Genus	Species	Reference
Ardeidae	<i>Ardea</i>	<i>herodias</i>	LMNRA
Anatidae	<i>Anas</i>	<i>crecca</i>	Blake
Anatidae	<i>Oxyura</i>	<i>jamaicensis</i>	Blake
Cathartidae	<i>Cathartes</i>	<i>aura</i>	LMNRA, ABBA
Accipitridae	<i>Accipiter</i>	<i>striatus</i>	Blake
Accipitridae	<i>Accipiter</i>	<i>cooperii</i>	Blake
Accipitridae	<i>Accipiter</i>	<i>gentiles</i>	ABBA
Accipitridae	<i>Buteo</i>	<i>jamaicensis</i>	Blake, ABBA
Accipitridae	<i>Aquila</i>	<i>chrysaetos</i>	Blake
Falconidae	<i>Falco</i>	<i>peregrinus</i>	Austin

Falconidae	<i>Falco</i>	<i>sparverius</i>	Blake,ABBA
Charadriidae	<i>Charadrius</i>	<i>vociferous</i>	Blake
Scolopacidae	<i>Actitis</i>	<i>macularia</i>	Blake
Scolopacidae	<i>Limnodromus</i>	<i>scolopaceus</i>	Blake
Recurvirostridae	<i>Himantopus</i>	<i>mexicanus</i>	Blake
Phalaropodidae	<i>Steganopus</i>	<i>tricolor</i>	Blake
Laridae	<i>Larus</i>	<i>philadelphia</i>	Blake
Phasianidae	<i>Centrocercus</i>	<i>urophasianus</i>	Huey
Phasianidae	<i>Mealagris</i>	<i>gallopavo</i>	ABBA
Columbidae	<i>Columba</i>	<i>fasciata</i>	Blake,ABBA
Columbidae	<i>Zenaida</i>	<i>macroura</i>	LMNRA,ABBA
Tytonidae	<i>Tyto</i>	<i>alba</i>	ABBA
Strigidae	<i>Otus</i>	<i>flammeolus</i>	LMNRA,ABBA
Strigidae	<i>Otus</i>	<i>asio</i>	Huey,ABBA
Strigidae	<i>Bubo</i>	<i>virginianus</i>	Huey,ABBA
Strigidae	<i>Athene</i>	<i>cunicularia</i>	Huey
Strigidae	<i>Asio</i>	<i>otus</i>	ABBA
Caprimulgidae	<i>Phalaenoptilus</i>	<i>nuttallii</i>	Blake,ABBA
Caprimulgidae	<i>Chordeiles</i>	<i>minor</i>	Blake,ABBA
Apodidae	<i>Chaetura</i>	<i>saxatalis</i>	Blake,ABBA
Trochilidae	<i>Selasphorus</i>	<i>platycercus</i>	Blake,ABBA
Trochilidae	<i>Archilochus</i>	<i>alexandri</i>	ABBA
Picidae	<i>Colaptes</i>	<i>auratus</i>	Huey, Blake,ABBA
Picidae	<i>Melanerpes</i>	<i>formicivorus</i>	Blake,ABBA
Picidae	<i>Sphyrapicus</i>	<i>thyroideus</i>	Blake,ABBA
Picidae	<i>Dendrocopos</i>	<i>villosus</i>	Huey, Blake,ABBA
Tyrannidae	<i>Tyrannus</i>	<i>tyrannus</i>	Blake,ABBA
Tyrannidae	<i>Tyrannus</i>	<i>vociferans</i>	Blake,ABBA
Tyrannidae	<i>Myiarchus</i>	<i>cinerascens</i>	Blake,ABBA
Tyrannidae	<i>Sayornis</i>	<i>nigricans</i>	Blake
Tyrannidae	<i>Sayornis</i>	<i>saya</i>	Blake,ABBA
Tyrannidae	<i>Empidonax</i>	<i>oberholseri</i>	Blake,ABBA
Tyrannidae	<i>Empidonax</i>	<i>wrightii</i>	Blake,ABBA
Tyrannidae	<i>Empidonax</i>	<i>difficilis</i>	Huey,ABBA
Tyrannidae	<i>Contopus</i>	<i>sordidulus</i>	Blake,ABBA
Tyrannidae	<i>Contopus</i>	<i>borealis</i>	Huey,ABBA
Alaudidae	<i>Eremophila</i>	<i>alpestris</i>	Blake
Hirundinidae	<i>Tachycineta</i>	<i>thalassina</i>	Blake,ABBA

Hirundinidae	<i>Stelgidopteryx</i>	<i>ruficollis</i>	Blake
Hirundinidae	<i>Progne</i>	<i>subis</i>	Huey
Corvidae	<i>Cyanocitta</i>	<i>stelleri</i>	Huey, Blake, ABBA
Corvidae	<i>Aphelocoma</i>	<i>coerulescens</i>	Huey, Blake, ABBA
Corvidae	<i>Corvus</i>	<i>corax</i>	Huey, Blake, ABBA
Corvidae	<i>Gymnorhinus</i>	<i>cyanocephalus</i>	LMNRA, Blake, ABBA
Corvidae	<i>Nucifraga</i>	<i>columbiana</i>	ABBA
Paridae	<i>Parus</i>	<i>gambeli</i>	Blake, ABBA
Paridae	<i>Parus</i>	<i>inornatus</i>	LMNRA, Blake, ABBA
Paridae	<i>Psaltiriparus</i>	<i>minimus</i>	Blake, ABBA
Sittidae	<i>Sitta</i>	<i>carolinensis</i>	Huey, Blake, ABBA
Sittidae	<i>Sitta</i>	<i>canadensis</i>	Blake, ABBA
Sittidae	<i>Sitta</i>	<i>pygmaea</i>	Huey, Blake, ABBA
Certhiidae	<i>Certhia</i>	<i>familiaris</i>	Blake, ABBA
Troglodytidae	<i>Troglodytes</i>	<i>aedon</i>	Blake, ABBA
Troglodytidae	<i>Thryomanes</i>	<i>bewickii</i>	Blake, ABBA
Troglodytidae	<i>Salpinctes</i>	<i>obsoletus</i>	Blake, ABBA
Troglodytidae	<i>Catherpes</i>	<i>mexicanus</i>	ABBA
Muscicapillidae	<i>Polioptila</i>	<i>caerulea</i>	ABBA, L. Stevens
Muscicapillidae	<i>Polioptila</i>	<i>melanura</i>	L. Stevens
Mimidae	<i>Mimus</i>	<i>polyglottos</i>	Huey, ABBA
Mimidae	<i>Orioscopes</i>	<i>montanus</i>	Blake
Mimidae	<i>Toxostoma</i>	<i>crissale</i>	ABBA
Turdidae	<i>Turdus</i>	<i>migratorius</i>	Blake, ABBA
Turdidae	<i>Sialia</i>	<i>mexicana</i>	Blake, ABBA
Turdidae	<i>Sialia</i>	<i>currucoides</i>	Blake
Turdidae	<i>Myadestes</i>	<i>townsendi</i>	Blake, ABBA
Turdidae	<i>Catharus</i>	<i>guttatus</i>	ABBA
Sylviidae	<i>Polioptila</i>	<i>caerulea</i>	Blake
Sylviidae	<i>Regulus</i>	<i>calendula</i>	Blake
Motacillidae	<i>Anthus</i>	<i>spinoletta</i>	Blake
Ptilonotidae	<i>Phainopepla</i>	<i>nitens</i>	ABBA
Laniidae	<i>Lanius</i>	<i>ludovicianus</i>	Blake
Vireonidae	<i>Vireo</i>	<i>vicinior</i>	Blake, ABBA
Vireonidae	<i>Vireo</i>	<i>solitarius</i>	Blake, ABBA
Vireonidae	<i>Vireo</i>	<i>gilvus</i>	Blake, ABBA
Parulidae	<i>Vermivora</i>	<i>virginiae</i>	Blake, ABBA
Parulidae	<i>Dendroica</i>	<i>coronata</i>	Blake, ABBA

Parulidae	<i>Dendroica</i>	<i>nigrescens</i>	Blake,ABBA
Parulidae	<i>Dendroica</i>	<i>graciae</i>	Blake,ABBA
Parulidae	<i>Oporornis</i>	<i>tolmiei</i>	Blake,ABBA
Parulidae	<i>Wilsonia</i>	<i>pusilla</i>	Blake,ABBA
Icteridae	<i>Sturnella</i>	<i>neglecta</i>	Blake,ABBA
Icteridae	<i>Icterus</i>	<i>parisorum</i>	Blake,ABBA,K.Burke
Icteridae	<i>Icterus</i>	<i>bullocki</i>	Blake
Icteridae	<i>Euphagus</i>	<i>cyaniceps</i>	Blake
Icteridae	<i>Molothrus</i>	<i>Ater</i>	Blake,ABBA
Thraupidae	<i>Piranga</i>	<i>flava</i>	Blake,ABBA
Thraupidae	<i>Piranga</i>	<i>rubra</i>	ABBA
Thraupidae	<i>Piranga</i>	<i>ludoviciana</i>	Huey,ABBA
Fringillidae	<i>Pheucticus</i>	<i>melanocephalus</i>	Blake,ABBA
Fringillidae	<i>Pheucticus</i>	<i>ludovicianus</i>	ABBA
Fringillidae	<i>Loxia</i>	<i>curvirostra</i>	Huey,ABBA
Fringillidae	<i>Carpodacus</i>	<i>cassinii</i>	Blake,ABBA
Fringillidae	<i>Carpodacus</i>	<i>mexicanus</i>	Blake,ABBA
Fringillidae	<i>Carduelis</i>	<i>Pinus</i>	Blake
Fringillidae	<i>Carduelis</i>	<i>psaltria</i>	Blake,ABBA
Fringillidae	<i>Pipilo</i>	<i>chlorura</i>	Huey, Blake
Fringillidae	<i>Pipilo</i>	<i>erythrophthalmus</i>	Blake,ABBA
Fringillidae	<i>Passerculus</i>	<i>sandwichensis</i>	Blake
Fringillidae	<i>Poocetes</i>	<i>gramineus</i>	Blake
Fringillidae	<i>Chondestes</i>	<i>grammacus</i>	Blake,ABBA
Fringillidae	<i>Amphispiza</i>	<i>bilineata</i>	Huey,ABBA
Fringillidae	<i>Junco</i>	<i>hyemalis</i>	Blake,ABBA
Fringillidae	<i>Spizella</i>	<i>passerina</i>	Blake
Fringillidae	<i>Spizella</i>	<i>breweri</i>	Blake,ABBA
Fringillidae	<i>Spizella</i>	<i>atrogularis</i>	Blake,ABBA
Fringillidae	<i>Zonotrichia</i>	<i>leucophrys</i>	Blake

MAMMALS

FAMILY	GENUS	SPECIES	SUBSPECIES	AUTHOR
BATS				
Phyllostomidae	<i>Macrotus</i>	<i>californicus</i>		Baird
Vespertilionidae	<i>Myotis</i>	<i>volans</i>	<i>interior</i>	Miller, Miller and Allen
Vespertilionidae	<i>Myotis</i>	<i>leibii</i>	<i>melanorhinus</i>	Merriam, Miller and Allen, Glass and Baker
Vespertilionidae	<i>Myotis</i>	<i>thysanodes</i>	<i>thysanodes</i>	Miller

Vespertilionidae	<i>Myotis</i>	<i>californicus</i>	<i>stephensi</i>	Dalquest
Vespertilionidae	<i>Pipistrellus</i>	<i>hesperus</i>	<i>hesperus</i>	Allen, Miller
Vespertilionidae	<i>Eptesicus</i>	<i>fuscus</i>	<i>pallidus</i>	Young, Miller
Vespertilionidae	<i>Lasiurus</i>	<i>cinereus</i>	<i>cinereus</i>	Palisot de Beauvois, H. Allen
Vespertilionidae	<i>Lasionycteris</i>	<i>noctivagans</i>		Le Conte, H. Allen
Molossidae	<i>Tadarida</i>	<i>brasiliensis</i>	<i>mexicana</i>	Saussure, Schwartz, Merriam
RABBITS				
Leporidae	<i>Sylvilagus</i>	<i>audubonii</i>	<i>arizonae</i>	J. A. Allen, Nelson,
Leporidae	<i>Lepus</i>	<i>californicus</i>	<i>deserticola</i>	Mearns, Nelson, Hall and Whitlow
RODENTS				
Sciuridae	<i>Tamias</i>	<i>dorsalis</i>	<i>grinnelli</i>	Burt
Sciuridae	<i>Ammospermophilus</i>	<i>leucurus</i>	<i>leucurus</i>	Merriam, Mearns
Sciuridae	<i>Spermophilus</i>	<i>variegates</i>	<i>grammurus</i>	Say, Hall and Kelson
Geomyidae	<i>Thomomys</i>	<i>bottae</i>	<i>planirostris</i>	Burt, Hall and Davis, Goldman, Durham
Heteromyidae	<i>Perognathus</i>	<i>longimembris</i>	<i>arizonensis</i>	Goldman, Heuy
Heteromyidae	<i>Perognathus</i>	<i>formosus</i>	<i>formosus</i>	Merriam, Cockrum,
Heteromyidae	<i>Perognathus</i>	<i>parvus</i>	<i>trumbullensis</i>	
Heteromyidae	<i>Perognathus</i>	<i>penicillatus</i>	<i>sobrinus</i>	Goldman
Heteromyidae	<i>Dipodomys</i>	<i>ordii</i>	<i>cupidineus</i>	Goldman
Heteromyidae	<i>Dipodomys</i>	<i>merriami</i>	<i>merriami</i>	Mearns
Heteromyidae	<i>Dipodomys</i>	<i>merriami</i>	<i>frenatus</i>	Bole
Heteromyidae	<i>Dipodomys</i>	<i>merriami</i>	<i>vulcani</i>	Benson
Heteromyidae	<i>Dipodomys</i>	<i>deserti</i>	<i>deserti</i>	Stephens, Elliot
Heteromyidae	<i>Dipodomys</i>	<i>mMicrops</i>	<i>celsus</i>	Goldman
Muridae	<i>Reithrodontomys</i>	<i>megalotis</i>	<i>megalotis</i>	Baird, Allen, J. A. Allen
Muridae	<i>Peromyscus</i>	<i>eremicus</i>	<i>eremicus</i>	Baird, Allen, Blossom
Muridae	<i>Peromyscus</i>	<i>crinitus</i>	<i>pergracilis</i>	Goldman
Muridae	<i>Peromyscus</i>	<i>maniculatus</i>	<i>sonoriensis</i>	LeConte, Osgood, Merriam
Muridae	<i>Peromyscus</i>	<i>boylii</i>	<i>rowleyi</i>	Allen, Mearns
Muridae	<i>Peromyscus</i>	<i>truei</i>	<i>truei</i>	Shufeldt, Thomas, Merriam, Elliot
Muridae	<i>Onychomys</i>	<i>leucogaster</i>	<i>melanophrys</i>	Merriam
Muridae	<i>Onychomys</i>	<i>torridus</i>	<i>longicaudus</i>	Merriam

Muridae	<i>Neotoma</i>	<i>lepida</i>	<i>devia</i>	Goldman
Muridae	<i>Mus</i>	<i>musculus</i>		Linnaeus
PORCUPINE				
Erethizontidae	<i>Erethizon</i>	<i>dorsatum</i>	<i>couesi</i>	Mearns
WEASLES				
Mustelidae	<i>Lutra</i>	<i>canadensis</i>	<i>sonora</i>	Rhodes, Allen
BEARS				
Ursidae	<i>Ursus</i>	<i>arctos</i>	<i>horribilis</i>	Ord, Rausch, Merriam
RACCOONS				
Procyonidae	<i>Procyon</i>	<i>lotor</i>	<i>pallidus</i>	Merriam, Grinnell, Mearns
Procyonidae	<i>Bassariscus</i>	<i>astutus</i>	<i>nevadensis</i>	Miller
DOGS				
Canidae	<i>Canis</i>	<i>latrans</i>	<i>mearnsi</i>	Merriam, Nelson
Canidae	<i>Canis</i>	<i>lupus</i>	<i>youngi</i>	Goldman
Canidae	<i>Vulpes</i>	<i>macrotis</i>	<i>macrotis</i>	Merriam, Goldman, Elliot, Nelson and Goldman
CATS				
Felidae	<i>Felis</i>	<i>rufus</i>	<i>baileyi</i>	Merriam
Felidae	<i>Puma</i>	<i>concolor</i>	<i>kaibabensis</i>	Nelson and Goldman
UNGULATES				
Cervidae	<i>Odocoileus</i>	<i>hemionus</i>	<i>hemionus</i>	Rafinesque
Ovidae	<i>Ovis</i>	<i>canadensis</i>		LAME 1979
Collared Peccary	<i>Pecari</i>	<i>angulatus</i>		Stevens 1992