



The National Park Service

Inventory & Monitoring

-FINAL REPORT-

COMPILATION OF EXISTING SPECIES DATA IN ALASKA'S NATIONAL PARKS

BY

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Introduction

The National Park Service (NPS) has recognized that all parks with significant natural resources require a set of standard data to serve as a basis for park management decisions. To meet this need, they established the Inventory and Monitoring Program (I&M). As part of the I&M Program, the Biological Inventory Program's goal is to provide comprehensive, scientifically-based information about the nature and status of vascular plants and vertebrates occurring within park boundaries.

In February 2000 the Alaska Natural Heritage Program (AKNHP) entered into a cooperative agreement with the Alaska Support Office of the National Park Service to assist with Step 1 of the Biological Inventory Program in Alaska: to compile and verify historical and predicted species data. The primary objective of the Biological Inventories was to document the occurrence of 90 % of the vertebrate and vascular plant species expected to occur in each park.

The three main goals addressed by AKNHP were: (1) produce lists of vascular plant and vertebrate species for each of the sixteen National Park units of the Alaska Region; (2) compile supportive evidence on the status of each species in each park and catalog this evidence in the bibliographic database NRBib; and (3) use this information to populate the NPSpecies database. Evidence gathered was in the form of published and unpublished literature, voucher collections, and observations. This final report summarizes the entire project and documents methods and decisions used to populate the NPSpecies and NRBib databases.

A special note is made here on a third database for this project called the Dataset Catalog. When AKNHP began work on this project the Dataset Catalog was not yet developed and was indicated to be a simple catalog of records to inventory datasets. During the development stages the Dataset Catalog evolved into a relational database of metadata for datasets. For most of the databases in this project the owners of the databases either extracted species data for us or allowed us access to the data via the web. Therefore, our knowledge of metadata information on databases we compiled was too limited for populating the Dataset Catalog. In lieu of having the databases in the Dataset Catalog we have cataloged them in the NRBib database.

The final products delivered by AKNHP to NPS were the populated NRBib and NPSpecies databases. This report summarizes methodologies used to develop and populate the NRBib and NPSpecies databases, and provides users with notes on key points to using NRBib and NPSpecies specific to Alaska parks. This report does not summarize the results of all data entry into NRBib and NPSpecies. Due to the complexity and overall size of the two databases, we encourage users to read this report first for an overview of what is contained within each of the databases, but queries about specific species, taxonomic groups, or geographic locations must be made directly to the database. An in-depth description of the NRBib and NPSpecies databases, answers to Frequently Asked Questions (FAQ), and a user guide and a tutorial for NPSpecies can be accessed through the NPS website at <http://www.nature.nps.gov/im/apps>.

AKNHP would like to emphasize that information contained within the NRBib and NPSpecies databases, as well as the software platforms they run upon, are dynamic, and will continue to be

developed as individual park inventories progress and as web-based technologies are updated. Data contained in the databases reported on here (including species lists and vouchered collections) are only current to September 30, 2001. The national I&M Office, Fort Collins, Colorado anticipates that the verification and validation process will be an ongoing effort over the next 2-3 years.

The NPSpecies and NRBib databases were intended to be useful to and useable by park managers and resource specialists. Therefore, the major priority for AKNHP was to get information into the databases to function as a framework that park personnel could continue to develop in future years. Preliminary population of the NPSpecies and NRBib databases was intended to identify gaps in species inventories that could be filled by targeted field investigations.

Tasks Used to Complete the Project

The NPS Biological Inventories were limited to vascular plants and vertebrates. During this project, responsibility for these major groups was handled by Tracey Gotthardt for birds, mammals, and amphibians, Mike Kelly for fish and Robert Lipkin for vascular plants. Additionally, Julia Lenz was assigned to oversee data flow between all three disciplines and coordinate data input to the NPSpecies and NRBib databases. At various times the services of seven different technicians and students were used for technical support and data entry.

AKNHP undertook seven tasks to fulfill the three project objectives listed above. These seven tasks included:

1. Establishment of a spatial buffer to aid in developing expected species lists for each park.
2. Compilation of references on vertebrates and vascular plants in each National Park unit for the NRBib database.
3. Compilation of vouchered data on vascular plants and vertebrates in each park.
4. Compilation of databases containing species information for entry into the database catalog.
5. Compilation of species lists for each park for entry into the NPSpecies database.
6. Peer review of the species lists.
7. Population of the NRBib and NPSpecies databases.

NPS Alaska Region held a Biological Inventory Scoping Meeting in Anchorage April 25-27, 2000 to develop priorities and explore ways to implement the inventory effort in parks throughout Alaska. Prior to the Scoping Meeting, AKNHP accomplished a cursory review of tasks 1 – 5 and presented preliminary species lists for review at the April meetings. Once the lists were reviewed (Task 6), AKNHP continued to implement Tasks 1-5 and also began implementation of Tasks 7 and 8.

The full extent of this project was eighteen months long and most of the tasks overlapped and were executed concurrently. The generalized schedule of dates when each of the tasks was carried out can be found in Table 1 General Schedule of Project Tasks and Events. This schedule also includes dates of major events during this project such as when we received NRBib and NPSpecies.

Table 1. General Schedule of Project Tasks and Events	
Prior to Scoping Meeting	
Establish a spatial buffer	Feb 2000
Compile references	Feb 2000-April 2001
Compile voucher collections	Feb 2000-Feb 2001
Compile database information	Feb 2000 – Feb 2001
Visits to Parks	Feb 2000 to June 2000
Received NPSpecies database	March 2000
Species lists completed for the Scoping meeting	April 2000
Scoping Meeting	April 2000
Species lists revised and sent out for peer review	June 2000
Peer reviewer comments returned	July – Sept 2000
NRBib received	June 2000
Reviewer comments incorporated and species list finalized	Aug –Oct 2000
After Scoping Meeting	
Data entry to NRBib	June 2000 –September 2001
ANCS+ collections received in NPSpecies format ¹	Sept 11, 2000
Data entry to NPSpecies	September 2000 – September 2001
Sent copy of NPSpecies master data file to I&M to be used as prototype data for development of the web version of NPSpecies	October 2000
Produced annual report	November 14, 2000
Species lists in spreadsheet form delivered to NPS Alaska Region as interim product.	October 2000
Status of ANCS+ collections entered into NPSpecies as Unconfirmed	February 2001
Cleanup and quality control of data	July 2001 – September 2001
Sent final NRBib data to I&M for transfer to NRBib	September 30, 2001
Sent final NPSpecies data to I&M for upload to web	September 30, 2001
Produced final report	September 30, 2001

¹ Prior to this date AKNHP had only hard copy documents of ANCS+ to work with for plants.

Task by Task Description of Methods

The general methods detailed below apply to all Alaska National Park units. Exceptions and additions to these methods for specific Park units are given in appendices at the end of this report. The remainder of this report presents task-by-task (of the seven tasks listed above) the

methods used to produce the species lists for the Scoping Meeting and for populating the NRBIB and NPSpecies databases.

A special note is made here concerning the use of the terms “Expected” and “Probably Present”. When species lists were made for the Scoping Meeting the term expected was used to designate species that may possibly occur in a park unit. However in the NPSpecies database Park Status field the term for expected is “Probably Present”. To avoid confusion, for the rest of this report, the term Probably Present will be used exclusively to indicate expected species, even if the Scoping Meeting is being discussed (see 7, Population of NPSpecies database, below, for a more complete description of Park Status fields).

1. Establishment of a Spatial Buffer

In order to standardize the selection of species to list as Present or Probably Present in the lists created for the April 2000 Scoping Meeting, we configured spatial buffers around each National Park unit. These same buffers were later used to determine the Park Status category for entry in NPSpecies. During the production of the species lists for the Scoping Meeting the emphasis was to list species as either Present or Probably Present in the park, and these are the categories used in development of all the lists. During data entry to NPSpecies, as evidence was reviewed and given a closer examination the status categories were expanded to include Unconfirmed and False Report (see Table 2 below).

Due to the diverse nature of the data for different taxonomic groups, different criteria (see below) were used to establish buffers for plants and vertebrates. The abundance of well-curated plant vouchers led us to use them as the basis for determining Park Status. Well-curated and verified vouchers for vertebrates were far less abundant and forced us to rely more heavily on observations and literary references. Because of these differences in criteria used, methods for vascular plants and vertebrates are discussed separately below. The criteria used to categorize the species into the NPSpecies park status types are presented in Table 2 below.

Vascular Plants

Plant taxa were recorded as Present within a Park unit only if they were reliably documented by a verified collection, preferably from a well-curated collection (see 3.Compilation of Vouchered Data, below). Taxa recorded as Probably Present included those known from within 50 km of the Park unit or those felt by experts to be likely to occur.

Most of the Park units are in remote areas that have received little botanical attention. Although we set a 50 km buffer around each Park unit, species are often found to be disjunct over hundreds of kilometers. Certain groups of plants (e.g. aquatics, graminoids, and crucifers) are notoriously under-collected and prone to turn up in new locations separated by large distances from their main range. Short of including the entire flora of Alaska (and adjacent regions) in the Probably Present list, there is no simple way to geographically determine a Probably Present species list. The 50 km buffer was chosen as one that would reasonably include species in similar climatic and biological settings. We recognize that the use of a spatial buffer based solely on distance is inherently arbitrary and likely to lead to errors of both inclusion and

Table 2. Criteria used to establish spatial buffers and classify species into the NPSpecies park status categories of Present, Probably Present, Unconfirmed, or False Report

	Present	Probably Present	Unconfirmed	False Report
Vascular Plant	Reliably documented by a verified collection.	Verified collections known to occur within 50 km of the Park unit or felt by experts to be likely to occur.	Known only from unverified collections, observations, or reliable literature ¹ .	Not used for plants.
Fish	Reliably documented in literature ¹ , verified and unverified collection data ² , or personal observation by a reliable source.	Freshwater and anadromous fish: (1) Reliable literature ¹ which located species in adjacent drainages or portions of drainages outside the Park unit. (2) Verified collection data. (3) Observations by a reliable source. Marine fish: (1) Reliable literature ¹ , which located species, expected to be found at mean high tide or in freshwater. ³ (2) Verified collection data. (3) Observations by a reliable source.	Verified or unverified collections made in drainages outside and nonadjacent to the Park unit or containing unclear geographic location data	Species documented from literature, vouchers, or observations, which are synonyms for a species already entered and given a status.
Bird, Mammal, Amphibian	Reliably documented in the literature, a verified collection existed, or it was observed by a reliable source	(1) Reliably documented by literature ¹ , voucher, or observation at sites within approximately 50 km outside of the Park unit. (2) Species occurred within park boundaries but not enough descriptive information was available to determine the accuracy of the location or frequency of species occurrence (3) Reliability of observer is questionable. (4) Birds: species whose occurrence is accidental or a vagrant.	(1) Collection information only documented to the species level. (2) Mammal and bird species if the only documentation available was from unverified literature, collections, or observations.	Species documented from literature, vouchers, or observations, which are synonyms for a species already entered and given a status.

¹. Reliable literature should be considered as peer-reviewed literature, unpublished reports from experts in their fields, or gray literature (unpublished reports, field reports, ranger reports, etc.) recommended by reviewers or park personnel.

². Collection vouchers used for only one species each in KATM (UAM verified collection) and KEFJ (unverified ANCS+ collection). These were judged to be Present based on the geographic description in the vouchers.

³. For GLBA a Probably Present status was given for marine fish known to be north of the 58^o N latitude.

exclusion. We attempted to correct many of these errors (including plants particular to substrates not found in a Park unit) but additional review and editing will be needed.

Plant taxa were recorded as Unconfirmed if they were only known from unverified collections, observations, or literature. Vouchers from the Herbarium of the University of Alaska Museum (ALA) formed the bulk of the verified collections used in this project. Collections listed in the National Park Service's Automated National Catalog System (ANCS+) database are not consistently curated and species known only from ANCS+ were listed as Unconfirmed pending verification of the specimen. (Exceptions included ANCS+ collections for KLG0 and SITK that have been partially verified. These verified species were given a status of Present.) Collections listed in Hulten 1941-50 were treated as reliably documented and were entered as Present if they were reported from areas within a park. In NPSpecies, the source of data used to determine the Park Status can be found by checking the **Park Status Details** field (see 7. Population of the NRBib and NPSpecies databases).

Vertebrates

For vertebrates, information from published and unpublished literature, personal observations, and a limited number of vouchered specimens was reviewed. This data often lacked exact geographic locations and gave more of a regional perspective. Determination of Present or Probably Present relied, therefore, on descriptions of observations and collection areas. Whether to use certain literature was based on (1) if a study occurred in or within approximately 50 km of the National Park units; (2) if the scientific study was judged reliable; and (3) if the author(s) was a reliable expert in their fields. Whether or not to use observation data was based on the reputation of the observer. For vertebrate lists made for the Scoping Meeting, the Probably Present category included both the NPSpecies Park Status categories Probably Present and Unconfirmed.

All peer-reviewed literature was considered a reliable reference, provided the study occurred within park boundaries. However, the majority of reference information used as evidence was from the gray literature. In many cases, gray literature was also considered a reliable reference. Reliability of gray literature was influenced by reviewer comments and by conferring with park personnel. In many cases, authors of numerous unpublished reports were established park biologists and experts in their field; these were deemed reliable references. To determine the reliability of unpublished reports and field data collected by seasonal workers, we conferred with Park Resource Managers whenever possible. Literature, both peer reviewed and gray, that was from studies occurring beyond park boundaries, or the reliability of the collector was somewhat in question, was used only as a secondary reference. Reviewer comments on reliability of references or data collectors were incorporated into the final NPSpecies database. NPSpecies did not provide a ranking field for literature reliability. Unreliable references were not used. The easiest way to determine the best reference for a particular species is to look at the **Data Source** field in NPSpecies (see 7. Population of the NRBib and NPSpecies databases).

Fish were recorded as Present, Probably Present or Unconfirmed based on information from literature, vouchered collections, or personal observations. Reliable literature was the primary source for determining status for the fish. Collection data was used if there was no literature record and personal observation data was used if that was the only source available.

Vouchered specimens played a secondary role in determining Park Status for fish due to three factors. First, there were very few fish vouchers available and most of these were for commonly accepted species already known about for the park. Second, many of the vouchers lacked good geographical location information. Third, by the time we received and processed the fish voucher data we had already determined the Park Status through reference material and entered this information into NPSpecies.

Fish were recorded as Present if reliable literature was found for their occurrence within park boundaries. This included published or gray literature, especially from the Alaska Department of Fish and Game (ADF&G), the National Marine Fisheries Service (NMFS), and the National Park Service (NPS). Voucher information was used for only one species each in KATM and KEFJ. (The voucher used in KATM was from a verified collection at the University of Alaska Museum (UAM) and the one for KEFJ was from unverified collection data in ANCS+.) These were categorized as present based on the geographic descriptions in the vouchers. Observation data was used for two species in KEFJ and one in GLBA.

For literature a Probably Present Park status was given for freshwater or anadromous fish known to be in adjacent drainages to a park or in drainages partially within a park but not documented (observed) within the park boundaries. In the case of GLBA—the only park with an extensive marine environment—a Probably Present status was given for marine fish known to be north of 58° N latitude. For the other parks, a Probably Present status was given for marine fish expected to be found at mean high tide or in freshwater. This information was based on several zoogeographic texts, field guides or fish keys including: Morrow 1980, Lindsey & McPhail 1986, Kessler 1985, Hart 1973, Eschmeyer & Herald 1983, Humann 1996, Love 1991, and Quast & Hall 1972. The key texts for freshwater ranges were Morrow 1980 and Lindsey & McPhail 1986 and for marine distribution Hart 1973, and Eschemeyer & Herald 1983. All collection data used to determine this status for any fish species came from the verified collection of UAM. No observation data was used to determine Probably Present status.

An Unconfirmed status was given based on geographic descriptions in the vouchers. If the voucher was the only source of information for the fish species, but it lacked good location information or the collection was made far outside adjacent drainages to the Park unit the species were given a Park Status of Unconfirmed. No literature or observation data was used to determine this status for any species. In NPSpecies the source of data used to determine the Park Status can be found by checking the **Park Status Details** field (see 7. Population of the NRBib and NPSpecies databases).

A mammal, bird, or amphibian species was recorded as Present within park boundaries only if it was reliably documented in the literature, a verified collection existed, or it was observed by a reliable source. If a vouchered specimen was available for a species and was from a reliable collection (or collector), this became the primary source of evidence for a given species. If no vouchered information was available, then documentation from the literature became the primary source of evidence. In most cases, observations were used only as secondary sources of evidence. A species was recorded as Probably Present if: (1) it was reliably documented (by collections, observations or literature) at sites within approximately 50 km of park boundaries; (2) the species occurred within park boundaries but not enough descriptive information was available to determine the accuracy of the location or frequency of species occurrence; or (3) the

reliability of the observer was in question. Species whose occurrence was documented within park boundaries as accidental or vagrant (i.e. bird species that are sighted once every five years) were recorded as Probably Present accompanied by a note in the Residency field as to whether the species was accidental or vagrant. Mammal and bird species were recorded as Unconfirmed if the only available documentation for a species was from unverified literature, collections, or observations. In some instances, collection (voucher) information was only identified to the genus level, not to species (i.e. *Sorex* spp.). Although this information was added to the database, it was recorded as Unconfirmed due to the unknown species. In NPSpecies, the source of data used to determine the Park Status can be found by checking the **Data Source** field (see 7. Population of the NRBib and NPSpecies databases).

2. Compilation of References

We searched bibliographies and visited park headquarters to find reliable references for the status of vertebrate and vascular plant species in the sixteen National Park units in Alaska. References included species lists, published and unpublished documents and reports, backcountry reports, inventory reports, original research reports, technical papers, investigator's annual reports, observation cards, and ranger reports.

Extensive use was made of bibliographic databases. In Anchorage, we had access to bibliographic databases at the University of Alaska Consortium Library, Z.J. Loussac Public Library, and the Alaska Resources Library and Information Service (ARLIS) that houses National Park Service reports formerly held at the Alaska Regional Office. Additional bibliographic databases such as Arctic and Antarctic Regions, Polar Pac, Laser Cat, NISC DISCover, Fish and Fisheries Worldwide, Arctic and Antarctic, and Aquatic Sciences and Fisheries were available through ARLIS and via the Internet. Other databases accessed were the AKNHP's Biological and Conservation Database, and University of Alaska Anchorage's Environment and Natural Resources Institute's in-house Prince William Sound and National Park Service bibliographies. NRBib was also searched when it became available.

All of the libraries listed above can be accessed in Anchorage or through the Internet sites. The University of Alaska Consortium Library is located on the University of Alaska, Anchorage campus at 3211 Providence Drive, Anchorage, Alaska. The website is www.lib.uaa.alaska.edu and the phone number is 786-1871. The Z.J. Loussac Public Library located at 3600 Denali Street, Anchorage, Alaska. The website is: library.ci.anchorage.ak.us, and the phone is: 343-2975. The Alaska Resources Library and Information Services (ARLIS) is located at 3150 C Street, Suite 100, Anchorage, AK 99503-3916. The website is: www.arlis.org, and the phone is: 907-272-7547.

Park Visits

An integral part of compiling data involved visiting the headquarters of each park. Visits ranged from three to five days, depending on the amount of information available for each park. A natural resource staff person was assigned in each park to help us locate files and documents within appropriate categories, and to introduce AKNHP staff to other park personnel for interviews. These visits are summarized in Table 3 below.

Before visiting a park, we performed thorough bibliographic searches in order to be aware of documents we could access locally. During park visits, we searched through libraries, archived material, available bibliographic databases, and un-cataloged gray literature files. We interviewed available park personnel who provided information on specific species and also provided contact information for experts with knowledge about the species of the area. In-house databases were normally of two varieties: observation card data cataloged into an observation database, and a catalog of literature that was filed away in cabinets.

We attempted to visit all park headquarters before the April 2000 Scoping Meeting but due to scheduling conflicts some visits did not take place until after the meetings. Park visits by AKNHP staff are summarized in the table below. More detailed information on individual park visits can be found in the appendices of this report.

Table 3. Dates, park contact and AKNHP personnel at each park headquarter.

Visit Date	Park Code	Park Headquarters	Park Contact	Park Unit	Collectors
Feb 7-10	KEFJ	Seward	Troutman	Kenai Fjords	Garibaldi, Lenz
Feb 15-18	ALAG	King Salmon	Austin	Alagnak Wild River	Garibaldi, Michaelson
Feb 15-18	ANIA	King Salmon	Austin	Aniakchak	Garibaldi, Michaelson
Feb 15-18	KATM	King Salmon	Austin	Katmai	Garibaldi, Michaelson
Feb 22-25	GAAR	Fairbanks	Swanson	Gates of the Arctic	Garibaldi
Feb 22-25	YUCH	Fairbanks	Swanson	Yukon-Charley	Garibaldi
Mar 1-3	SITK	Sitka	Williams	Sitka	Boggs
Mar 13-17	GLBA	Gustavus	Sharman	Glacier Bay	Lenz, Michaelson
Mar 20-23	DENA	Denali	Roland	Denali	Garibaldi, Klein
Apr 11-14	BELA	Nome, Kotzebue	Neitlich	Bering Land Bridge	Garibaldi, Klein
Apr 11-14	CAKR	Nome, Kotzebue	Neitlich	Cape Krusenstern	Garibaldi, Klein
Apr 11-14	KOVA	Nome, Kotzebue	Neitlich	Kobuk Valley	Garibaldi, Klein
Apr 11-14	NOAT	Nome, Kotzebue	Neitlich	Noatak	Garibaldi, Klein
May 2-4	LACL	Port Alsworth	Knuckles	Lake Clark	Gotthardt, Klein
May 23-25	WRST	Copper Center	Mitchell	Wrangell-St. Elias	Gotthardt, Lenz
June 5-8	KLGO	Skagway	Furbish	Klondike Gold Rush	Gotthardt, Lenz

3. Compilation of Vouchered Data

The two major sources of voucher data were: 1) ANCS+ and 2) collection data for plants, birds, fish and mammals from the University of Alaska Museum (UAM). Other smaller voucher collections were also found and are listed in the separate taxonomic groups discussed below. Table 4 summarizes by Park unit and taxa the total number of vouchers entered into NPSpecies for each taxonomic group as of September 30, 2001. All voucher data for specific Park units are listed and summarized in the appendices at the end of this report.

Table 4. Total number¹ of vouchers from collections entered in NPSpecies by park and taxa² for UAM, ANCS+, and any other collections used.

	Vascular Plant Vouchers				Fish Vouchers				Bird Vouchers				Mammal Vouchers			
	UAM	ANCS+	Other	Total	UAM	ANCS+	Other	Total	UAM	ANCS+	Other	Total	UAM	ANCS+	Other	Total
ANIA	1044	0	0	1044	0	0	0	0	0	0	0	0	0	0	0	0
ANIA	409	428	0	837	1	0	0	1	1	5	0	6	9	107	0	116
BELA	1416	2544	77	4037	3	19	0	22	16	1	2	19	63	108	2	173
CAKR	416	314	0	730	2	0	0	2	4	4	19	27	3	6	0	9
DENA ³	**	2818	3434 ³	6252	5	0	0	5	15	64	117	196	235	853	401	1489
GAAR	1652	693	280	2625	7	0	0	7	11	1	8	20	179	215	29	423
GLBA	921	4075	614	5610	100	2	0	102	32	27	152	211	42	83	121	246
KATM	735	802	550	2087	44	0	0	44	8	4	7	19	4	28	2	34
KEFJ	1183	461	0	1644	0	1	0	1	0	3	2	5	0	10	30	40
KLGO	277	1007	229	1513	0	0	0	0	9	9	0	18	47	13	0	60
KOVA	761	171	0	932	11	7	0	18	0	3	0	3	8	8	0	16
LACL	849	785	73	1707	6	0	0	6	0	0	9	9	0	0	5	5
NOAT	1111	391	0	1502	0	0	0	0	29	0	97	126	67	364	0	431
SITK	272	158	0	430	7	0	0	7	0	1	112	113	0	13	2	15
WRST ⁴	**	**	8824 ⁴	8824	6	0	0	6	2	3	8	13	51	1	17	69
YUCH	1067	1139	134	2340	84	0	0	84	19	0	7	26	70	0	44	114

¹-These values are total counts of vouchers. No distinction is made as to the number of these vouchers that occur inside or outside of the Park unit. NPSpecies does not provide a field for tracking whether an individual specimen occurs within the park boundaries. To find out which vouchers occur within Park unit boundaries examine the lat-long coordinates and/or the geographic description in the voucher form of NPSpecies.

² Amphibians are not included as the only Park unit with a voucher collection for amphibians was WRST from the Auke Bay Laboratory, Juneau, AK

³ DENA collection data provided the DENA plant voucher database by the botanist for DENA. ANCS+ collection data provided by the national I&M office.

⁴ WRST collection data provided from the WRST plant voucher database by the botanist for WRST.

ANCS+ data were received from the national I&M office in NPSpecies database format. AKNHP reviewed the data and sent the files to the national I&M office for upload to the web. All other voucher data were received as electronic spreadsheets. All spreadsheet data were checked for errors and columns were formatted in the spreadsheets to fit fields in NPSpecies. Once the spreadsheets were prepared, they were sent to the national I&M office for upload to NPSpecies format and returned to AKNHP for review. Once reviewed, AKNHP sent the data files back to the national I&M office for upload to the web. As the collections from ANCS+ and UAM were the two main sources of voucher data the total number of vouchers received for each park are summarized in Table 4. Details on these and other collections are discussed by taxonomic group below.

UAM sent us electronic spreadsheets of voucher collections for birds, mammals, fish and plants. (No amphibian vouchers were available.) Plant vouchers for DENA and WRST were entered directly from spreadsheets prepared by botanists from those Parks.

As mentioned above, all ANCS+ data were supplied to AKNHP from the national I&M office in NPSpecies database format. The plant data for WRST was the one exception. The botanist for WRST has incorporated the ANCS+ data into an extensive plant database and that data was sent to AKNHP to populate the NPSpecies.

Vascular Plant Vouchers

Collections from the UAM Herbarium and from ANCS+ were the primary vouchers used in this project. The herbarium's data is stored in electronic databases and contains fields for latitude and longitude as well as the 1:250,000 scale USGS topographic map for the collection locality. We obtained data for all collections located in USGS map quadrangles within and adjacent to the sixteen Alaska Park units. We also obtained collection information for regions in Canada adjacent to YUCH, WRST, GLBA, and KLGO. All data was transferred to us electronically as delimited files. The resulting 50,000 records were imported into an ARC/Info GIS and overlain on park boundaries with a 50 km spatial buffer established around each park. The resulting 12,151 collections were entered into NPSpecies as either Present or Probably Present based on their presence within either the park boundary or the 50 km buffer zone around the park. (Collections from DENA and WRST were entered directly from spreadsheets prepared by botanists from those parks.)

The records from the UAM herbarium are not truly geo-referenced. Although they contain latitude and longitude fields, these are typically estimated from USGS maps, (often at 1:250,000 scale), are often inaccurate, and many times contain transcription errors. As a result of these error sources, collections on or near the borders of parks were often displayed as being outside the park boundary. If these were the only records of that taxon for the park, this created an error in the Park Status field. We attempted to clean up many of these errors, but review of all 12,151 records was beyond the scope of this project.

Other specimen-based sources included selected holdings of the following in-state and out-of-state herbaria:

Collections vouchers cited in Hulten 1941-1950
Herbarium of the U.S. Forest Science Lab, Juneau

Herbarium of Klondike National Historic Park, Skagway
Herbarium of the U.S. Forest Service, Seward
Herbarium of U.S. Forest Service, Sitka

Herbarium of the University of British Columbia
Herbarium of the Dept. of Agriculture, Ontario
Herbarium of the University of Washington
United States National Herbarium, Smithsonian Institution
Herbarium of the Swedish Museum of Natural History, Stockholm
Herbarium of the New York Botanical Gardens
Canadian National Museum, Ottawa
Gray Herbarium of Harvard University
Herbarium of Brigham Young University

Taxa with collections from these sources were regarded as verified and entered as Present if collected within the parks boundaries, and Probably Present if collected within the 50 km buffer around the park.

The ANCS+ database is referenced to particular parks but contains no consistent field to allow direct import into a GIS. Initially we believed that collections from ANCS+ had been verified for geographic location and were coded as Present for the park they represented. After reviewing the data we realized that the identification of collections had not been consistently verified and that the collection areas often were outside the park and outside the park buffer. It was beyond the scope of this project to verify the identification and location of each individual collection in ANCS+. Consequently, ANCS+ plant collections from most Park units were treated as Unconfirmed. (Exceptions included collections from KLGO and SITK that had been verified.) We feel that verification of the remaining collections should be considered a high priority for each Park unit and will be a great help in refining the Status field for species as entered in NPSpecies.

Fish Vouchers

The ANCS+ database had fish vouchers for the following parks: BELA, GLBA, KEFJ, and KOVA (Table 4 above). There is a collection of marine fish vouchers at the National Marine Fisheries Service Auke Bay Laboratory at Auke Bay, Alaska. The collection is not park specific, nor has it been cataloged or put into an electronic format. The Auke Bay Laboratory expressed interest in performing their own inventory of these samples and providing that information to the National Park Service.

The coordinator of the aquatics department at UAM provided an electronic spreadsheet of fish voucher collections for the National Park units (Table 4 above). The Excel file contained 276 voucher records for 129 different fish species in the following parks: ANIA, BELA, CAKR, DENA, GAAR, GLBA, KATM, KOVA, LACL, SITK, WRST, and YUCH. Often Latitude and longitude data was incomplete for these specimens. We determined specimen location within or adjacent to the park by examining the geographic location. If a specimen's location information was vague or the location was far outside adjacent drainages to the Park unit it was given a Park Status of Unconfirmed.

Bird and Mammal Vouchers

UAM sent 154 voucher records for birds and 784 for mammals (Table 4 above). The UAM voucher data for birds and mammals was sent after the Scoping Meeting, and not received in time to be used to create species lists for that meeting. The ANCS+ database supplied 125 voucher records for birds and 1792 for mammals. Other voucher information included the University of California, Berkeley; the University of Washington, Burke Museum; University of Colorado Museum; and the Cornell University Museum. This information was geo-referenced, whenever enough location information was provided, and entered into NPSpecies. If a vouchered specimen was available for a species and was from a reliable collection (or collector), this became the primary source of evidence for a given species.

4. Compilation of Databases

Several individual park databases contained species data: DENA's Small Mammals Database (Denali National Park, No date), GLBA's Wildlife Observations Database (Glacier Bay National Park, No date), KEFJ Wildlife Observations Database (Kenai Fjords National Park, 1999?), KEFJ Plant Observations Database (Kenai Fjords National Park, 1996?), SITK Alaska Water Watcher Data (Sitka National Historic Park, 2000), and SITK Indian River Salmon Database (Sitka National Historic Park, 2000?), SITK Escapement summary, 08/99, for Indian River, Starrigavin Creek, Katlian River, Katlian Bay, and So. Fork Salmon Lake Stream (Sitka National Historic Park, 1999), WRST Seabird Observations Database (Kozie, No date), and WRST Landbird Observations Database (Kozie, No date).

Other databases contained information about park species but were not located at the parks. These include: collection information from the University of Alaska Museum for plants, mammals, birds, and fish (University of Alaska Museum, 2000), The U.S. Fish and Wildlife Service's Beringian Seabird Colony Database (Stephensen, 1998), and AKNHP's Biological and Conservation Database (Alaska Natural Heritage Program, 2000). All databases used in this project were cataloged in NRBib.

5. and 6. Compilation and Peer Review of Species Lists

The species lists were first created for use at the April 2000 Scoping Meeting and later used as the base for populating NPSpecies. For each of the sixteen parks, a separate species list was made for plants, birds, mammals, and fish. Due to low numbers of amphibians in Alaska, one spreadsheet incorporating the occurrence of amphibians within all 16 Park units was created. The lists consisted of the species names, their status (Present or Probably Present), and a citation supporting the given status. (For vertebrates the category Probably Present included the NPSpecies categories Probably Present and Unconfirmed. For plants, the ANCS+ data was treated in the lists as Present, but after the lists were completed the status for all ANCS+ collections was changed to Unconfirmed during data entry of plant data to NPSpecies.)

Comments from the Scoping Meeting were incorporated into the species lists after the meetings, and the lists were sent out for peer review by the end of June. Reviewers were chosen for their expertise in their respective fields and their availability. See Table 5 below, for reviewer names

and associated organizations. Comments were returned to AKNHP by the end of September 2000, and the completed Excel spreadsheet lists became the basis for data entry into NPSpecies.

The completed species lists were delivered as an interim product to the NPS Alaska Regional Office in October 2000. In the completed species lists for vascular plants the status of ANCS+ supported species were reported as Present in the lists. However, the statuses of ANCS+ supported vascular plant species were entered in NPSpecies as Unconfirmed (with the exception of know verified voucher in the collections for KLGO and SITK, which were entered as Present) in February 2001. (See the discussion of Vascular Plants above under 3. Compilation of Vouchered Data.)

Table 5. List of reviewers and the park(s) and taxon reviewed for species lists.

Reviewer – Organization	Park	Taxon Reviewed
Richard Russell - ADF&G	KATM, ALAG, ANIA	Birds & Mammals
Dick Sellers - ADF&G	KATM, ALAG, ANIA	Birds & Mammals
Donna Dewhurst - USFWS	KATM, ALAG, ANIA	Birds & Mammals
Susan Savage - USFWS	KATM, ALAG, ANIA	Birds & Mammals
Brad Andres - USFWS	ALL PARKS	Birds
Jennifer Williams - NPS	SITK	Birds & Mammals
Walt Cunningham	SITK	Birds / Mar. mamm.
Marge Ward, Marlys Tedin	SITK	Birds
Rebecca Joyce	SITK	Birds
Jan Straley	SITK	Marine mammals
Steve MacDonald – UAM	ALL PARKS	Mammals
Kevin Winker - UAM	ALL PARKS	Birds
Dan Gibson - UAM	ALL PARKS	Birds
Carl Mitchell - NPS	WRST	Birds and Mammals
Karen Kozie, Bill Route- NPS	WRST	Birds and Mammals
Terry Doyle - (via K. Kozie)	WRST	Birds
Greg Streveler (private)	GLBA, KLGO, SITK	Birds and Mammals
Chad Soiseth – NPS	GLBA	Fish
Troy Hamon – NPS	KATM	Fish
Bill Wilson - LGL (private)	ALL PARKS	Fish
Greg Streveler - (private)	GLBA, SITK, KLGO	Fish
Fred Decicco – ADF&G	ALL PARKS	Fish
Bruce Wing - NMFS	ALL PARKS	Fish
Gregg Streveler –(private)	GLBA, KLGO, SITK	Plants
Koren Bosworth	GLBA, KLGO, SITK	Plants
Alan Batten, UAM	ANIA, CAKR, NOAT, YUCH	Plants
David Murray, UAM	BELA, CAKR, GAAR, KEFJ, KATM, YUCH	Plants
Carolyn Parker, UAM	KATM, KOVA, KLGO, LACL, YUCH	Plants
Phil Caswell - NPS	LACL	Plants
Mary Stensvold -USFS	GLBA, KLGO, SITK	Plants

7. Population of the NRBib and NPSpecies Databases

The majority of time expended on this project was spent populating the NRBib and NPSpecies databases. Once evidence data in the form of reference literature, voucher collections, and databases was compiled and reviewed, it was entered into the NRBib citation database. After the species lists from the Scoping Meeting were reviewed and reviewer comments incorporated, the species names, status, and sources from those lists were entered into NPSpecies. Other sources of evidence - besides those on the reviewed lists - were added to NPSpecies both through manual and electronic data entry to strengthen supporting data already entered from the lists. The rest of this report consists of a general discussion of these two databases under the following layout:

Population of the NRBib Database

- Background information on the database
- NRBib/NPBib Numbers – what they are
- Keywords used

Population of the NPSpecies Database

- Versions of NPSpecies database
- Summary table of the number of species now in NPSpecies
- Nomenclature used in the database
- Synonym and historic name problems
- Data Entry to NPSpecies
 - Vascular plants
 - Fish
 - Birds, mammals, amphibians

Population of the NRBIB Database

Background information

NRBib is the database used by the National Park Service to compile and manage their bibliographic information on natural resources. The database exists under a Procite platform. The national I&M office is currently incorporating it into NPBib, an Oracle/web-based database that merges a number of previously separate databases such as NRBib, GeoBib, and others. At this time, not all of the Alaska NRBib references have been transferred to NPBib, however, references used as evidence in NPSpecies are now in NPBib. On the web, NPBib interfaces with NPSpecies so lookup of a reference can be done from NPSpecies. An Access version is also being constructed for use with the Access NPSpecies.

AKNHP used NRBib to record citations for data compiled from park visits and bibliographic searches, with a focus on species-specific information. The data we contributed to NRBib was not intended to be a complete bibliography of natural resource information for any park. Our efforts focused on seeking out the best literature available to make full species lists and determine the status of those species.

Prior to entering bibliographic information, AKNHP received a pre-populated version of NRBib from the national I&M office. The database contained 7,839 bibliographic records of park

natural resources documents for hydrology, geology, history, and cultural studies as well as species information. AKNHP added 634 new citations and edited 583 records that already existed in the database (Table 6 below). (The 583 records edited represent the best of the records with species information from the pre-populated NRBib. This left an unknown number of publications with species related information unedited in the database. For publications dated before 2000 a future user of NPBib should search the database first to see if the reference has already been cited.) A total of 1,217 citation records were entered or edited in the database; this includes literature, voucher collections, and databases examined in the process of completing this project.

The revised NRBIB database was sent to Marilyn Ostegren, the national I&M office's lead contact for NRBib and NPBib databases, for editing and transfer into the National NPBib database. The final NRBib dataset for Alaska was sent to Ms. Ostegren's office on September 30, 2001.

Table 6. Total Number of citations entered or edited by AKNHP for NRBib as of 9/30/2001.

Park	Plant	Fish	Bird	Mammal	Amphibian
ALAG	7	17	11	10	0
ANIA	25	23	26	22	0
BELA	65	39	42	41	0
CAKR	31	36	43	32	0
DENA	26	15	33	36	0
GAAR	61	29	29	41	1
GLBA	39	89	26	48	5
KATM	43	62	36	34	0
KEFJ	20	13	19	12	1
KLGO	26	14	15	17	3
KOVA	40	32	22	17	3
LACL	22	31	19	17	2
NOAT	42	33	27	31	2
SITK	14	17	7	5	0
WRST	54	52	30	43	6
YUCH	40	24	75	21	2

All references that were used in NPSpecies were entered into NRBib, however, not all references we entered to NRBib were used as evidence within NPSpecies. The vertebrate species lists were mainly based on reference data and, therefore, most of the data relating to species that we entered into NRBib was also entered into NPSpecies. Plant species lists relied principally on voucher information, and literature references were entered as secondary evidence. For plants, only the most reliable or useful references were entered into NPSpecies while other references with species related data were entered in NRBib. The number of references entered into NPSpecies for the separate taxonomic groups can be found in the appendices for each park at the end of this report.

NRBib/NPBIB numbers – what they are

Each new entry was given a unique NRBib number in the keywords field. The number consisted of the park four letter code, a dash, and four numbers, e.g. LACL-0440. The choice of number was arbitrary but care was exercised not to duplicate a number that had already been used for one

of the existing 7,000 entries. As NRBib is converted to NPBib, new computer generated NPBib numbers will be assigned.

Since the transfer of all data from the NRBib to the NPBib was not completed at the time of this report, AKNHP produced citation lists for the various Park units from NRBib. This creates a slight inconvenience as NRBib numbers are displayed, but not the NPBib numbers. However, the NPBib has a field that holds the NRBib number and any of these references can be found in the NPBib.

Keywords Used

Keywords were kept simple and were consistently formatted for all entries. All citations that were added or edited by AKNHP included the NRBib number, park name and one or more of these basic keywords: plants, vegetation, birds, fish, mammals, and amphibians.

Additional keywords were added to help in narrowing a search, including: Common name, Scientific name, ecology, freshwater fish, marine fish, anadromous, specific geographic locations, checklist, field notes, report, inventory, manuscript, terrestrial mammal, marine mammal, flora, botany, ecology. The general form for keywords in NRBib is:

NRBIB: NRBib number / GENERAL AREA OF STUDY / keyword 1 / keyword 2 / Park Name

An example of an entry to the keywords field of NRBib is:

NRBIB: ANIA-0006 / ANIMAL STUDIES /vascular plants / birds (Aves) / field notes / birds / marine fish / observations / Aniakchak National Monument and Preserve, King Salmon, Alaska.

(An extensive NRBib Thesaurus for keywords is available online at <http://www.nature.nps.gov/nrbib>.)

Once transfer and editing of all data from NRBib is complete the NPBib will be the database with all the Park units reference data. All new entries of reference material can and should be entered to the web version of NPBib.

Population of the NPSpecies Database

The NPSpecies database is designed to document the present, past, and probable occurrence of species in NPS units. This project was limited to information on vertebrate and vascular plant taxa in Alaska National Park units.

NPSpecies is available in two application types: an Access 97 program for stand-alone use on PC computers, and an interactive web-based program developed in Oracle. All manual data entry was done by AKNHP in the Access 97 version. The web-based/Oracle program is now the central source of park data, and all editing, deleting and entry of future data should be performed on the web-based/Oracle program. The database is still undergoing development and future versions can be expected. During this project we initially entered data in Version 1.0 with final entry in Version 1.2.

For definitions and descriptions of the data fields and the basics of data entry into NPSpecies refer to the User Guide, Tutorial, Frequently Asked Questions (FAQ) and Data Dictionary files that can be downloaded from www.nature.nps.gov/im/apps/npspp.

Entries into NPSpecies require at least one of the following forms of evidence: references, vouchered specimens, or personal observations. For this project, some observations were used as evidence, but most of the evidence consisted of vouchers or references. Once the species lists from the April Scoping Meeting were reviewed and finalized, we began data entry into the NPSpecies master file for Alaska (AK_be.mdb file).

NPSpecies was initially populated with species names from the ANCS+ database and some references supplied by Park units prior to our receipt of the database. However this data was incomplete as it lacked park status information and mistakes had been made during data entry. Therefore AKNHP checked and reviewed all the data originally supplied with the database. Table 7 below, summaries by park the final numbers of species entered to the NPSpecies database as of September 30, 2001 for each of the taxomic groups.

Park	Plant	Fish	Bird	Mammal	Amphibian
ALAG	423	24	122	34	0
ANIA	472	19	145	40	0
BELA	857	61	152	47	0
CAKR	389	60	150	40	0
DENA	1309	14	183	61	1
GAAR	790	16	134	40	1
GLBA	938	313	233	58	4
KATM	868	41	254	69	0
KEFJ	660	40	210	54	1
KLGO	880	11	163	45	3
KOVA	463	24	125	31	1
LACL	1358	55	189	45	1
NOAT	688	24	148	44	1
SITK	298	11	161	24	0
WRST	1308	25	239	56	2
YUCH	927	18	173	40	2

Nomenclature of Species Names used in NPSpecies

The NPS adopted the Integrated Taxonomic Information System (ITIS) as nomenclature standard for NPSpecies. Each species in ITIS has a unique identifier number called the Taxonomic Serial Number (TSN). An example of a TSN number is 175420 for the bald eagle (*Haliaeetus leucocephalus*). The TSN is an essential link to the ITIS database and other database modules and tables within NPSpecies.

ITIS is a large and extensive database and it has a couple of quirks that data entry personnel should be aware of. The first of these is encountered when the ITIS database doesn't contain the name of the species being entered. When this happens, the user is required to assign a "NPS temporary TSN" number. Currently, this number is displayed as a negative TSN number. The

national I&M office is working to have all the names of all taxa added to the ITIS database. For further information on NPS temporary TSN numbers see FAQ numbers 7, 11, and 17 at the NPSpecies web site: www.nature.nps.gov/im/apps/npspp. Sometimes during electronic data entry negative TSN's were created from misspelled names. All negative TSN entries throughout the dataset were examined by AKNHP for misspellings and corrected when found.

A second quirk of ITIS concerns duplicate names. Some species in ITIS are entered more than once resulting in multiple TSN numbers for the same taxon. Because of this it is possible to enter the same species twice in a Park-Species list. This condition exists for several reasons. FAQ #9 discusses duplicate names and suggests how to work around the problem.

Once all data entry was complete for all Park units, AKNHP checked the entire data set for duplicate entries and reduced all duplicates to single entries using the following method suggested in FAQ #9:

“Select the TSN that identifies the species of interest and, if possible has "usage"=valid or accepted. If none of them match exactly as you think it should be, then just select the closest one.”

Synonym and Historic Names

When entering data from a variety of sources (voucher collections, literature, and databases), the problem of historic names and synonyms surfaces. The following excerpt from FAQ #16 on the NPSpecies web site (www.nature.nps.gov/im/apps/npspp) demonstrates the dilemma:

“The challenge in developing the NPSpecies database centers around that fact that in the immediate future, the bulk of data entry will be "legacy" (i.e. historic) data that will include synonyms and historic names in the form of References, Vouchers and Observations (i.e. "evidence"). Concurrently, the "lists" or "counts" of species generated from the database should include only "currently accepted" names to avoid exaggerated numbers of species on any given list. In between the data entry and the output of species lists, there is also the challenge of updating information in the database if, for example, the name of a species changes.

In regards to data entry, it is unrealistic to expect every person that enters data into NPSpecies, now and in the future, to have knowledge of the nomenclatural "history" of any given species and whether the name is currently "acceptable". Likewise, "accepted" scientific names for the same species vary spatially and temporally (your biology 101 professor misled you when you were told to memorize all those scientific names because they uniquely identified a species). In regards to updating names already entered in NPSpecies, it is similarly unrealistic to expect every park, for example, to have to continually update a name throughout the database every time a name changes.

Ideally, a person that is entering data into NPSpecies should not have to be concerned with the history of the species names. One should be able to enter names exactly as they appear when they were originally documented, regardless of whether the name is a synonym, historic name, or the currently accepted name. Likewise, once a species name is entered, there should be no need for every user to constantly track and update species names to match name changes. Ideally, some central source should track the synonyms and historic names, as well as the "currently accepted" names. This is the approach for which NPSpecies was designed. The central source to track synonyms, historic, and "currently acceptable" taxonomic names is ITIS.”

Two options are presented in the FAQ for dealing with this situation. After reading this FAQ and consulting with personnel at the national I&M office, AKNHP decided on Alternative 1: “When entering evidence, enter the TSN for the species name as documented”. Using this choice allows for people without strong taxonomic knowledge to enter data, but it also leads to inflated species lists. At this time, the national I&M office has provided a reporting routine, within the

Access version of NPSpecies, to deal with this problem called "Accepted Name Reporting". More detail on this topic can be found in FAQ #23.

The following short term fix for paring down inflated species lists was suggested to us in correspondence sent August 31, 2000 by Mark Watawa of the national I&M office.

"- If a species name on the Park-Species list is a synonym name, code the Park-Status as "False Report" and enter "synonym" in the Park-Species Details. Then enter what you consider to be the currently accepted name into "Preferred Local Name". In version 2 of NPSpecies, you will be able to enter a TSN for the Preferred Local Name rather than actually typing in the name. ...

...you will be able to generate a list of currently accepted names by NOT selecting "False Report" on the Park-Status Tab of the Park-Species Report Form. (Note that in version 2 you will be able to generate identical reports directly through the TSN entered in the "Preferred Local Name" - you will not have to worry about coding synonyms as False Reports.) Additionally, you can generate a list of all names in the database by including "False Report" during reporting. And finally, in the future, you will be able to search and generate reports based on any of the synonyms that are already linked together in ITIS."

AKNHP applied the above method to vertebrates, as the numbers of synonym names for animals were low (usually less than 5 for any taxa in a Park unit). This was not applied to plants as the numbers of synonyms for plants for any given Park unit runs in the hundreds. Since this method was only a short-term fix, to perform this method for hundreds of plant species became a task beyond the scope of this project. As the ITIS database for synonymy is refined, this problem will be resolved. For now, vascular plant species lists generated from NPSpecies may be inflated by approximately 5-20%.

Unique catalog numbers for vouchers and observations

For data entry the user should be aware that unique catalog numbers have not yet been created for vouchers or observations. This can lead to duplicate entries for the same voucher or observation. However, unique numbers will be generated in the future and will be required for data entry. The following excerpts from FAQ's #20 and 21 helps to explain this dilemma and how to handle it:

"At this time, a voucher does not need to have a unique catalog number in order to enter it into NPSpecies. However, if it does have a catalog number and storage location, then enter this information in the Specimen ID and Specimen Location fields, respectively, of the Vouchers form. In time, as voucher records become more organized, the Specimen ID and Specimen Location combination should uniquely identify every voucher and will become mandatory entries. In the meantime, consistent data entry into these 2 fields will minimize the real possibility of duplicate entries. It will also reduce conversion efforts when these 2 fields do become mandatory entries"

"At this time duplicate voucher records cannot be completely avoided. To minimize the possibility, enter a Specimen ID and a Specimen Location for each voucher entry. These fields will eventually become mandatory, unique identifiers and will eliminate duplicate entries."

Data entry to NPSpecies

Figure 1. The main data entry form in NPSpecies, at the time AKNHP was performing data entry, is the “Park-Species List” shown here.

The fields AKNHP populated in NPSpecies for all taxa were **ITIS (Scientific Name), Preferred Local Names (Scientific), Preferred Local Names (Common), Park Status, Park Status Details, Data Source, Comments, Entered by** and **Date**. Additionally, **Abundance, Abundance Details, Residency, and Residency Details** were populated for birds and mammals when enough information was available to do so. See below for a discussion on how each of these fields was dealt with in the different taxonomic groups.

Vascular Plants

The following discussion applies to all parks except DENA and WRST. The botanists at these parks provided us with electronic spreadsheets of their species and collection databases which were imported into NPSpecies. For more specific information on these two parks see appendices for these Park units.

ANCS+ species names had been entered into the database before we began data entry. Taxa for which an ANCS+ collection was the only evidence were given a Park Status of Unconfirmed pending verification of the collection.

Our data entry began with references. Reference data was entered manually park by park. All taxa that were only known through a literature citation were also given a Park Status of Unconfirmed. After references were added, the collections from the UAM Herbarium were loaded. The Park Status for these taxa was recorded as either Present or Probably Present, depending on whether the collection was from within the park or the buffer. Collections cited in Hulten 1941-1950 were recorded as Present. Only a few Park units had observation data entered and these taxa were recorded as Unconfirmed.

For vascular plants the fields populated in the Park-Species form were: **ITIS (Scientific Name), Preferred Local Names (Scientific), Park Status, Park Status Details, Data Source, Comments, Entered by and Date.**

ITIS (Scientific Name): AKNHP entered the scientific names “as documented” from the data source (literature, voucher or observation).

Preferred Local Names (Scientific): With exceptions, the majority of plants in this field reflect the same scientific name as that entered in the **ITIS (Scientific Name)**. The exceptions to this rule are: 1.) For records based on ANCS+ collections, the national I&M office populated this field with names that included the original author(s) name. For example, “*Carex nesophila* Holm” from ANCS+ was placed in this field while “*Carex nesophila*” was entered as the **ITIS (Scientific Name)**. 2.) For plants from the UAM collection, if the name in the **ITIS (Scientific Name)** field (which was entered “as documented”) was known to be a synonym then the accepted ITIS scientific name was entered here. (The need for this has become obsolete, but at the time AKNHP was performing data entry there was no field to hold the accepted name for a synonym. More recent versions of NPSpecies now have a field in the Park Species List form for the ITIS accepted name.)

Park Status: Refers to the status of a species in the park. Choices in this field are **Present, Probably Present, Unconfirmed, Historic, and False Report**. **Present** was used for those taxa known from a verified collection made in the Park unit. **Probably Present** was used for taxa known from collections within the 50 km spatial buffer, or for taxa that were considered by reviewers to be likely to occur in the park. **Unconfirmed** was used for taxa known only from unverified collections, literature, or observations. The Status categories **Historic** and **False Report** were not used for vascular plants. **NOTE:** All vouchers were entered under the “name as documented”, with the Park status for that taxon depending on the source and verification of the collections. This sometimes resulted in a different Status being assigned to different synonyms of the same taxon. For example: *Elymus mollis* and *Elymus arenarius* ssp. *mollis* are both listed as synonyms for *Leymus mollis*. In a Park with entries for all three names, the correct Status of the synonyms should be the most “restricted” one listed: Present, in preference to Unconfirmed and Probably Present. As the ITIS synonymy is refined and as ANCS+ holdings are verified, this problem should be resolved.

Park Status Details: Information on the source used for determining the Park Status. If the Status is based on a UAM voucher it will read: “Status based on voucher information from University of Alaska Museum, Herbarium”. If the Status is from ANCS+ it will read: “Status based on voucher from ANCS+”. If the Status is from Hulten 1941-1950 it will read: “Status based on voucher recorded in Hulten, Eric. 1941-1950. Flora of Alaska and Yukon”. Finally, if the Status is from a reference, the citation will be inserted.

Data Source: According to the Data Dictionary this field is intended to hold the name of the data source used to determine the Status, Abundance, Residency, etc. The only field of this type AKNHP addressed for plants was Park Status. Therefore this field currently holds the source of the data in the Park Status field. If the Status is from a UAM voucher it will read: “Northern Plant Documentation Center, Herbarium, University of Alaska Museum”. If the Status is from ANCS it will start with “Converted from [four letter park code] ANCS+”. If the Status is from Hulten it will read “Hulten, Eric. 1941. Flora of Alaska and Yukon”. And finally, if the Status is from a reference the citation will be inserted. In the future, as the fields other than Status are populated, this field will need to be changed.

Comments: Any general comments about the species.

Entered by: Initials of person entering the data plus the initials of the agency doing the data entry, currently this is either I&M or AKNHP. Examples of this type of entry are: jkl-aknhp or NJS of the I&M office.

Date: Date datasheet information was last changed.

Fish

Fish species lists and the decision on Park Status, were primarily based on literature as evidence. Voucher information for fishes was spotty and concentrated on the more commonly known species. Therefore, references became the main source of evidence available for this group.

Data entry began with the references from the finalized species lists prepared by Mike Kelly, fisheries biologist. After the species lists were entered, additional supporting references were compiled and entered by Julia Lenz and Tracey Gotthardt. Voucher data from the ANCS+ database was entered by the national I&M office. Voucher data from UAM was received as a spreadsheet, synthesized by AKNHP, and sent to the national I&M office for upload to NPSpecies. The only two parks with observation data were WRST and KEFJ. The WRST data was entered manually by AKNHP, and observation data for KEFJ was entered electronically by the national I&M office from files sent by staff at KEFJ.

During data entry to the NPSpecies database, the “False Report” category was used to identify records that were synonyms for species already in the database. In order not to delete or overwrite this work, we entered False Report in the **Park Status** category and

entered the ITIS accepted name in the **Preferred Local Names (Scientific)** field. This technique was suggested by the national I&M office, see the discussion of this under Synonyms and Historic Names in 7. Population of the NRBib and NPSpecies Database.

For fish the fields populated in the Park-Species form were: **ITIS (Scientific Name)**, **Preferred Local Names (Scientific)**, **Preferred Local Names (Common)**, **Park Status**, **Park Status Details**, **Data Source**, **Comments**, **Entered-by** and **Date**.

ITIS (Scientific Name): AKNHP entered the scientific names “as documented” from the data source (literature, voucher or observation).

Preferred Local Names (Scientific): For fish this field contains either the same name as that entered for the **ITIS (Scientific Name)**, or if the **ITIS (Scientific Name)** was known to be a synonym then the ITIS accepted name was entered here. (The need for this has become obsolete, but at the time AKNHP was performing data entry there was no field to hold the accepted name for a synonym. Current versions of NPSpecies now have a field in the Park Species List form for the ITIS accepted name.)

Preferred Local Name (Common): Common name for this species.

Park Status: Refers to the status of a species in the park. Choices in this field are **Present**, **Probably Present**, **Unconfirmed**, **Historic**, and **False Report**. For fish: **Present** was used for those taxa in literature, collections, or observations made within the Park unit; **Probably Present** was given for freshwater or anadromous fish known to be in adjacent drainages to a park or in drainages partially within a park but not documented (observed) within the park boundaries. In the case of GLBA—the only park with an extensive marine environment—a Probably Present status was given for marine fish known to be north of 58⁰ N latitude. For the other parks with marine environments, a Probably Present status was given for marine fish expected to be found at mean high tide or in freshwater; **Unconfirmed** was used for voucher collections made in drainages outside and nonadjacent to the Park unit or with vague geographic location data; **False Report** was used for species with obsolete synonym; **Historic** was not used for fish data.

Park Status Details: The main source used to determine Park Status is entered here. For fish, this is almost always a literature citation, although a few UAM vouchers were used to determine status for some parks.

Data Source: According to the Data Dictionary this field is intended to hold the name of the data source used to determine: Status, Abundance, Residency, etc. The only field of this type AKNHP addressed was Park Status. Therefore this field currently holds the source of the data in the Park Status field. This field will hold either a reference citation or if a voucher was used this field will read: “Status based on voucher from University of Alaska Museum, Aquatics”.

Entered by: Initials of person entering the data plus the initials of the agency doing the data entry, currently this is either I&M or aknhp. Examples of this type of entry are: jkl-aknhp or NJS of the I&M office.

Birds, Mammals, Amphibians

Voucher information available for both birds and mammals was sparse and concentrated on the more commonly recognized or abundant species. Thus, literary references comprised the main source of evidence used for this group.

Within the NPSpecies database, the “False Report” category was used to identify records with obsolete taxonomy/synonymy problems. Since species were entered “as documented” there are entries for species names that contained obsolete taxonomy or synonymy problems. In order not to delete or overwrite this work, we entered False Report in the **Park Status** category, and under the **Park Status Details** category entered the nature of the False Report (i.e. synonymy, obsolete taxonomy). This technique was suggested by the national I&M office (see the discussion of this under Synonyms and Historic Names above in 7. Population of the NRBib and NPSpecies Database).

Accidental species sightings for birds took special consideration during data entry. Accidental species were listed as either present or probably present (depending on the reliability of a source – i.e. whether or not they had actually been seen in or near the park), with an abundance ranking of UNKNOWN, and a residency ranking of VAGRANT. It was then noted whether the sighting was “accidental” or “casual”.

The fields addressed in NPSpecies Park-Species form were: **ITIS (Scientific Name), Preferred Local Names (Scientific), Preferred Local Names (Common), Park Status, Park Status Details, Data Source, Comments, Entered-By** and **Date**. Also for birds and mammals the **Abundance, Abundance Details, Residency, Residency Details, fields** were addressed.

ITIS (Scientific Name): AKNHP entered the scientific names “as documented” from the data source (literature, voucher or observation).

Preferred Local Names (Scientific): AKNHP entered scientific names as documented in the literature. If this was known to be a synonym name then the accepted name for that species was entered in this field. (The need for this has become obsolete, but at the time AKNHP was performing data entry there was no field to hold the accepted name for a synonym. Current versions of NPSpecies now have a field in the Park Species List form for the ITIS accepted name.)

Preferred Local Names (Common): Common name(s) for the species.

Park Status: Refers to the status of a species in the park. Choices in this field are **Present, Probably Present, Unconfirmed, Historic, and False Report**. **Historic** status was only used for two species (cow and horse) in KLGO, otherwise it was not used in our data entry. **Unconfirmed** was used for instances,

particularly with vouchers, when birds or mammals were identified to the genus level only (i.e. *Sorex* spp.). This information remains valuable and we decided to include it in the database, giving these entries a Park Status ranking of Unconfirmed. Listed in Park Status Details is the accompanying reason for this status ranking (i.e. incomplete taxonomy, identified to genus only, genus species unknown). **False Report** is explained above.

Park Status Details: Additional details for park status; for example if one of the above codes did not offer a complete description or elaboration on status was desired.

Abundance and Residency: Whenever sufficient information was available, abundance and residency fields were populated. If the source of the abundance or residency information differed from the source used to complete the Status field, the corresponding source for abundance/residency was then included in the **Abundance/Residency Details** field.

Data Source: is where the source (reference) for the Park Status, Abundance, and Residency was added.

Entered by: Initials of person entering the data plus the initials of the agency doing the data entry, currently this is either I&M or aknhp. Examples of this type of entry are: jkl-aknhp or NJS of the I&M office.

As mentioned in the introduction of this report: “The national I&M Office, Fort Collins, Colorado anticipates that the verification and validation process will be an ongoing effort over the next 2-3 years”. The population of these databases by AKNHP is a first step to achieving a completed species database. Our major priority was to get solid base information into the databases so they can be built upon in the future. AKNHP has made a concerted effort to find all data related to vascular plant and vertebrate species for all sixteen Alaska National Park units. Care was exercised while compiling the evidence and while choosing which sources to use as evidence in NPSpecies. There has been a tremendous amount of data collected, reviewed, and entered since the start of this project in February 2000. All data was input under general rules applied to all sixteen Park units and all taxa. We strived for consistency in data entry for all the Park units. This data is current to September 30, 2001. As park service personnel take control of the databases and the data, they may find the general methods applied by AKNHP to all Alaska Park units need refinement on an individual park basis. This is to be expected and viewed as an opportunity to change, delete, or add data to make these functional and complete databases for your parks.

In conclusion, AKNHP emphasizes that the information contained in the NPbib and NPSpecies databases are in a dynamic state. Not only the data, but also the databases themselves are still in development. Three revisions of the Access version of NPSpecies have been released since version 1.0 was introduced in March of 2000. Version 1.4 is available as of October 2001. Each revision has been an improvement over the previous one. Many of the improvements made by the national I&M office to the databases are due to suggestions made by users. As National Park Service personnel take over control

of data entry to the databases they are sure to see ways for improving the databases and data entry. These ideas and suggestions should be made known to the national I&M office. The more they hear from users the more useful these products can be made for all concerned.

Appendices

Appendix 1: Alagnak Wild River (ALAG) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the final report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Alagnak Wild River (ALAG), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for ALAG follow the same general methodology presented in the final report. A more detailed account of the visit to Alagnak Wild River headquarters by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group:

Park unit visit

A valuable segment of searching and compiling data included visiting park headquarters to search files for species evidence and interview available natural resource staff about species occurrence in the Park unit. Two AKNHP staff members visited park headquarters at King Salmon, Alaska on February 15-18, 2000. Data collection for Aniakchak National Monument and Preserve and Katmai National Park and Preserve was done simultaneously. Our main contact for the visit was Amanda Austin, Resource Management Specialist. Other park staff members contacted included Jane Bachieri, Natural Resource Specialist; Richard Clark, Chief of Resource Management; and Troy Hamon, Fisheries Biologist. In addition to park staff, Susan Savage, USFWS Wildlife Biologist at Alaska Peninsula National Wildlife Refuge (NWR), was contacted via phone.

With the help and direction of Amanda Austin, the park library and numerous natural resource files were searched for plant, amphibian, bird, fish, and mammal species information. ALAG is a small Park unit and the numbers of studies specific to the park are small. At King Salmon there was a separate file of documents that pertain specifically to ALAG and this was thoroughly checked. Since ALAG is adjacent to KATM attention was directed towards KATM studies that would also pertain to ALAG. A Procite database that cataloged natural resource literature was used to help search for relevant documents.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds and mammals. No evidence for amphibians was found. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for ALAG has been prepared for this report; refer to that list for references entered into NPSpecies. The list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data, followed by observations and, finally, voucher information. References and observations were entered manually from the original texts while vouchers were entered from digital spreadsheets and databases. The only taxonomic group with voucher collection data was plants and the only group with observations was mammals. Summaries of the data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

All vascular plant data entered into NPSpecies came from collection data from the herbarium at the University of Alaska Museum (UAM). Since no collections from ALAG itself were known, collections from adjacent KATM that were thought likely to occur in ALAG were coded as Probably Present. No reliable observation or reference data for vascular plants were found.

Plant species list reviewer(s): David Murray, University of Alaska Museum and Carolyn Parker, University of Alaska Museum.

Summary table of vascular plant data for ALAG entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citation records entered or edited in NRBib¹	7
Number of species entered in NPSpecies²	423
<i>Number with status as Probably Present</i>	423
Number of literature references entered in NPSpecies	0
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	1044
<i>Number of Vouchers from the University of Alaska Museum³</i>	1044
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Northern Plant Documentation Center".	

Fish

All fish data entered into NPSpecies came from literary references. No observations or voucher information were available for fish in this Park unit.

Fish species list reviewer(s): Bill Wilson, LGL (a private consulting firm); Fred Decicco, Alaska Department of Fish and Game (ADF&G); and Bruce Wing, National Marine Fisheries Service.

Summary table of fish data for ALAG entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	17
Number of species entered in NPSpecies	24
<i>Number with status as Present</i>	9
<i>Number with status as Probably Present</i>	15

Summary table of fish data for ALAG entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of literature references entered in NPSpecies	6
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	0
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	

Birds

Literary references were the only source of evidence for this group. No observations or voucher information for birds were entered for this Park unit. The Abundance and Residency fields were not addressed due to lack of sufficient information.

Bird species list reviewer(s): Richard Russell, ADF&G (King Salmon); Dick Sellers, ADF&G (King Salmon); Donna Dewhurst, USFWS (Anchorage, formerly Refuge Manager, Alaska Peninsula NWR); Susan Savage, USFWS (formerly wildlife biologist KATM); Brad Andres, USFWS – Migratory Bird Management; Kevin Winker - UAM; Dan Gibson, UAM

Summary table of bird data for ALAG entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	11
Number of species entered in NPSpecies	122
<i>Number with status as Present</i>	<i>84</i>
<i>Number with status as Probably Present</i>	<i>37</i>
<i>Number with status as False Report²</i>	<i>1</i>
Number of literature references entered in NPSpecies	5
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	0
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "False Report" status was used to identify records with obsolete taxonomy/synonymy problems.	

Mammals

Literary references are the main source of evidence for this group. There are 9 personal observations. No voucher information was available for mammals in this Park unit. The Abundance and Residency fields were not populated due to lack of sufficient information.

Mammal species list reviewer(s): Richard Russell, ADF&G (King Salmon); Dick Sellers, ADF&G (King Salmon); Donna Dewhurst, USFWS (Anchorage, formerly Refuge Manager, Alaska Peninsula NWR); Susan Savage, USFWS (formerly wildlife biologist KATM), Steve MacDonald, UAM

Summary table of mammal data for ALAG entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	10
Number of species entered in NPSpecies	34
<i>Number with status as Present</i>	21
<i>Number with status as Probably Present</i>	13
Number of literature references entered in NPSpecies	10
Number of observations entered in NPSpecies²	9
Number of vouchers entered in NPSpecies	0
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² Observations are from Richard Russell, Alaska Department of Fish and Game, King Salmon, AK.	

Appendix 2: Aniakchak National Monument and Preserve (ANIA) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the final report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Aniakchak National Monument and Preserve (ANIA), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for ANIA follow the same general methodology presented in the final report. A more detailed account of the visit to Aniakchak park headquarters by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group.

Park unit visit

A valuable segment of searching and compiling data included visiting park headquarters to search files for species evidence and interview available natural resource staff about species occurrence in the Park unit. Two AKNHP staff members visited park headquarters at King Salmon, Alaska on February 15-18, 2000. Data collection for Alagnak Wild River and Katmai National Park and Preserve was done simultaneously. Our main contact for the visit was Amanda Austin, Resource Management Specialist. Other members of the park staff contacted were Jane Bacchieri, Natural Resource Specialist; Richard Clark, Chief of Resource Management; and Troy Hamon, Fisheries Biologist. In addition to park staff, Susan Savage, USFWS Wildlife Biologist at Alaska Peninsula National Wildlife Refuge (NWR), was contacted via phone.

With the help and direction of Amanda Austin, the park library and numerous natural resource files were searched for plant, fish, bird, mammal, and amphibian species information. A Procite database that cataloged natural resource literature was used to help search for relevant documents. All data files made available were examined, although a thorough investigation of park Ranger Reports was not completed due to time constraints. The visit to the park was particularly helpful in providing backcountry reports and unpublished documents.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds and mammals. No evidence for amphibians was found. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for ANIA has been prepared for this report; refer to that list for references entered into NPSpecies. The list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data, followed by observations, and finally, voucher information. References and observations were entered manually from the original texts while vouchers were entered from digital spreadsheets and databases. Summaries of the data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

Vascular plant data entered to NPSpecies for ANIA came from three sources.

- 1.) Verified collection data from the herbarium at the University of Alaska Museum (UAM).

- 2.) Unverified collection data from the Automated National Catalog System (ANCS+).
- 3.) Species information from literature.

(No observations were entered for plants since all taxa mentioned in observation reports were either documented by vouchers or referred to in the literature.)

Plant species list reviewer(s): Alan Batten, University of Alaska Museum.

Summary table of vascular plant data for ANIA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	25
Number of species entered in NPSpecies²	472
<i>Number with status as Present</i>	148
<i>Number with status as Probably Present</i>	141
<i>Number with status as Unconfirmed</i>	183
Number of literature references entered in NPSpecies	10
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	837
<i>Number of Vouchers from the University of Alaska Museum³</i>	409
<i>Number of Vouchers from the ANCS+ database⁴</i>	428
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7.	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source for "Northern Plant Documentation Center".	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Converted from ANIA ANCS+, Anianh.zip by I&M".	

Fish

With the exception of one fish voucher from the University of Alaska Museum (UAM), all fish data entered into NPSpecies came from literature. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature.

Fish species list reviewer(s): Bill Wilson, LGL (a private consulting firm); Fred Decicco, Alaska Department of Fish and Game (ADF&G); and Bruce Wing, National Marine Fisheries Service.

Summary table of fish data for ANIA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	

Summary table of fish data for ANIA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	23
Number of species entered in NPSpecies	19
<i>Number with status as Present</i>	8
<i>Number with status as Probably Present</i>	8
<i>Number with status as Unconfirmed²</i>	3
Number of literature references entered in NPSpecies	11
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	1
<i>Number of Vouchers from the University of Alaska Museum³</i>	1
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² An "Unconfirmed" status for fish indicates that a voucher was the only evidence available for this species and the collection was made outside adjacent drainages to the park or has a vague geographic description.	
³ To find this voucher in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source for "UAM Collection, University of Alaska Fairbanks".	

Birds

Literary references comprised the main source of evidence used for this group. Voucher information available for birds was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from both the UAM and ANCS+. There were eight personal observations entered for birds. The Abundance and Residency fields were populated when enough information was available.

Bird species list reviewer(s): Richard Russell, ADF&G (King Salmon); Dick Sellers, ADF&G (King Salmon); Donna Dewhurst, USFWS (Anchorage, formerly Refuge Manager, Alaska Peninsula NWR); Susan Savage, USFWS (formerly wildlife biologist KATM); Brad Andres, USFWS – Migratory Bird Management; Kevin Winker, UAM; Dan Gibson, UAM

Summary table of bird data for ANIA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	26
Number of species entered in NPSpecies	145
<i>Number with status as Present</i>	124
<i>Number with status as Probably Present</i>	7
<i>Number with status as Unconfirmed²</i>	4
<i>Number with status as False Report³</i>	10
Number of species with Abundance field populated	83

Summary table of bird data for ANIA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of species with Residency field populated	42
Number of literature references entered in NPSpecies	21
Number of observations entered in NPSpecies⁴	8
Number of vouchers entered in NPSpecies	6
<i>Number of Vouchers from the University of Alaska Museum⁵</i>	<i>1</i>
<i>Number of Vouchers from the ANCS+ database⁶</i>	<i>5</i>
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations.	
³ The "False Report" status identifies records with obsolete taxonomy/synonymy problems.	
⁴ Personal observations from Donna Dewhurst, USFWS (Anchorage, formerly Refuge Manager, Alaska Peninsula NWR) and Susan Savage, USFWS (formerly wildlife biologist KATM), and one observation from Texas Bird Sound Library 2000.	
⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "UAM Collection."	
⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source field for "Converted from ANIA ANCS+, Anianh.zip, by the I&M office."	

Mammals

Literary references comprised the main source of evidence used for this group. Voucher information available for mammals was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from both the UAM and ANCS+. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. Abundance and Residency fields were populated whenever enough information was available to do so.

Mammal species list reviewer(s): Richard Russell, ADF&G (King Salmon); Dick Sellers, ADF&G (King Salmon); Donna Dewhurst, USFWS (Anchorage, formerly Refuge Manager, Alaska Peninsula NWR); Susan Savage, USFWS (formerly wildlife biologist KATM), Steve MacDonald, UAM

Summary table of mammal data for ANIA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	22
Number of species entered in NPSpecies	40
<i>Number with status as Present</i>	<i>30</i>
<i>Number with status as Probably Present</i>	<i>4</i>
<i>Number with status as False Report²</i>	<i>6</i>

Summary table of mammal data for ANIA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of species with Abundance field populated	7
Number of species with Residency field populated	1
Number of literature references entered in NPSpecies	16
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	116
<i>Number of Vouchers from the University of Alaska Museum³</i>	9
<i>Number of Vouchers from the ANCS+ database⁴</i>	107
<p>¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.</p> <p>² The "False Report" status identifies records with obsolete taxonomy/synonymy problems.</p> <p>³To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "UAM Collection."</p> <p>⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source field for "Converted from ANIA ANCS+, Anianh.zip, by the I&M office."</p>	

Appendix 3: Bering Land Bridge National Preserve (BELA) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the Final Report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Bering Land Bridge National Preserve (BELA), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for BELA follow the same general methodology presented in the final report. A more detailed account of the visit to Bering Land Bridge National Preserve headquarters by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group.

Park unit visit

A valuable segment of searching and compiling data included visiting park headquarters to search files for species evidence and interview available natural resource staff about species occurrence in the Park unit. Two AKNHP staff members visited park headquarters at Nome, Alaska on April 11 -12, 2000 and then traveled to Kotzebue, Alaska on April 13-14, 2000 to search for additional data. Data collection for Cape Krusenstern National Monument, Kobuk Valley National Park, and Noatak National Preserve was done simultaneously. Our main contact for the visit was Peter Neitlich, Botanist for Western Arctic National Parklands. Other park staff contacted were Lois Dolle-Molle, Supervisory Resource Management Specialist, and Brad Shults, Wildlife Biologist. In addition to park staff, contacts were made with Randy Meyers, of the U. S. Bureau of Land Management, for information about collections she has made in the parks, and LeAnn Ayers, U.S. Fish and Wildlife Service (USFWS). The majority of the visit was spent manually searching through the paper files made available.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds and mammals. No evidence for amphibians was found. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for BELA has been prepared for this report; refer to that list for references entered into NPSpecies. The citation list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data, followed by observations and, finally, voucher information. References and observations were entered manually from the original texts while vouchers were entered from electronic spreadsheets and databases. Summaries of the data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

Vascular plant data entered to NPSpecies for BELA came from five sources.

- 1.) Verified collection data from the herbarium at the University of Alaska Museum (UAM).
- 2.) Unverified collection data from the Automated National Catalog System (ANCS+).
- 3.) Verified collection data from Hulten 1941-1950.
- 4.) Species information from literature.
- 5.) Observations made in the Park unit.

Plant species list reviewer(s): David Murray, University of Alaska Museum.

Summary table of vascular plant data for BELA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	65
Number of species entered in NPSpecies²	857
<i>Number with status as Present</i>	481
<i>Number with status as Probably Present</i>	149
<i>Number with status as Unconfirmed</i>	227
Number of literature references entered in NPSpecies	13
Number of observations entered in NPSpecies³	55
Number of vouchers entered in NPSpecies	4037
<i>Number of Vouchers from the University of Alaska Museum⁴</i>	1416
<i>Number of Vouchers from the ANCS+ database⁵</i>	2544
<i>Number of Vouchers from Hulten 1941-1950⁶</i>	77
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7.	
³ There are 53 observations made by Jeff Mason, U.S. Fish and Wildlife (Mason 1989), and 2 observations by Dave Murray, University of Alaska Museum. Either observer can be found in the NPSpecies observations by searching the Data Source field for the observer's last name.	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Northern Plant Documentation Center".	
⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Converted from BELA ANCS+, Belanh.zip by I&M".	
⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Hulten, Eric. 1941-1950. Flora of Alaska and Yukon. Lunds University, Stockholm, Sweden. 10vols."	

Fish

Fish species data entered to NPSpecies for BELA came from three sources.

- 1.) Voucher data from the Aquatics department of the University of Alaska Museum (UAM).
- 2.) Voucher data from the Automated National Catalog System (ANCS+).
- 3.) Species information from literature.

No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature.

Fish species list reviewer(s): Bill Wilson, LGL (a private consulting firm); Fred Decicco, Alaska Department of Fish and Game; and Bruce Wing, National Marine Fisheries Service.

Summary table of fish data for BELA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	39
Number of species entered in NPSpecies	61
<i>Number with status as Present</i>	17
<i>Number with status as Probably Present</i>	43
<i>Number with status as False Report²</i>	1
Number of literature references entered in NPSpecies	20
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	22
<i>Number of Vouchers from the University of Alaska Museum³</i>	3
<i>Number of Vouchers from the ANCS+ database⁴</i>	19
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² Species with False Report indicate a synonym.	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source for "University of Alaska Museum, Fairbanks".	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source field for "Converted from BELA ANCS+, Belanh.zip, by the I&M office."	

Birds

Literary references comprised the main source of evidence used for this group. Voucher information available for birds was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from UAM, ANCS+, and the Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. The Abundance and Residency fields were populated whenever enough information was available to do so.

Bird species list reviewer(s): Brad Andres, USFWS – Migratory Bird Management; Kevin Winker, UAM; Dan Gibson, UAM.

Summary table of bird data for BELA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	42
Number of species entered in NPSpecies	152
<i>Number with status as Present</i>	129
<i>Number with status as Probably Present</i>	23

Summary table of bird data for BELA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of species with Abundance field populated	133
Number of species with Residency field populated	131
Number of literature references entered in NPSpecies	30
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	19
<i>Number of Vouchers from the University of Alaska Museum²</i>	<i>16</i>
<i>Number of Vouchers from the ANCS+ database³</i>	<i>1</i>
<i>Number of Vouchers from the MVZ collection⁴</i>	<i>2</i>
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "UAM Collection."	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source field for "Converted from BELA ANCS+, Belanh.zip, by the I&M office."	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "MVZ 11/8/00."	

Mammals

Literary references comprised the main source of evidence used for this group. Voucher information available for mammals was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from UAM, ANCS+, and the Museum of Vertebrate Zoology (MVZ) at University of California Berkeley. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. The Abundance and Residency fields were populated whenever enough information was available to do so.

Mammal species list reviewer(s): Steve MacDonald, University of Alaska Museum.

Summary table of mammal data for BELA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	41
Number of species entered in NPSpecies	47
<i>Number with status as Present</i>	<i>23</i>
<i>Number with status as Probably Present</i>	<i>19</i>
<i>Number with status as False Report²</i>	<i>5</i>
Number of species with Abundance field populated	12
Number of species with Residency field populated	6
Number of literature references entered in NPSpecies	28

Summary table of mammal data for BELA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	173
<i>Number of Vouchers from the University of Alaska Museum³</i>	63
<i>Number of Vouchers from the ANCS+ database⁴</i>	108
<i>Number of Vouchers from the MVZ collection⁵</i>	2

¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.

²The "False Report" status identifies records with obsolete taxonomy/synonymy problems.

³ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "UAM Collection."

⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source field for "Converted from BELA ANCS+, Belanh.zip, by the I&M office."

⁵To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "MVZ 10/4/00."

Appendix 4: Cape Krusenstern National Monument (CAKR) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the final report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Cape Krusenstern National Monument (CAKR), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for CAKR follow the same general methodology presented in the final report. A more detailed account of the visit to the Park unit headquarters for Cape Krusenstern by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group.

Park unit visit

A valuable segment of searching and compiling data included visiting park headquarters to search files for species evidence and interview available natural resource staff about species occurrence in the Park unit. Two AKNHP staff members visited park headquarters at Nome, Alaska on April 11 -12, 2000 and then traveled to Kotzebue, Alaska on April 13-14, 2000 to search for additional data. Data collection for Cape Krusenstern National Monument, Kobuk Valley National Park, and Noatak National Preserve was done simultaneously. Our main contact for the visit was Peter Neitlich, Botanist for Western Arctic National Parklands. Other park staff contacted were Lois Dolle-Molle, Supervisory Resource Management Specialist, and Brad Shults, Wildlife Biologist. In addition to park staff, contacts were made with Randy Meyers, of the U. S. Bureau of Land Management, for information about collections she has made in the parks, and LeAnn Ayers, U.S. Fish and Wildlife Service (USFWS). The majority of the visit was spent manually searching through the paper files made available.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds and mammals. No evidence for amphibians was found. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for CAKR has been prepared for this report; refer to that list for references entered into NPSpecies. The citation list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data, followed by observations and, finally, voucher information. References and observations were entered manually from the original texts while vouchers were entered from electronic spreadsheets and databases. Summaries of the data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

Vascular plant data entered to NPSpecies for CAKR came from three sources.

- 1.) Verified collection data from the herbarium at the University of Alaska Museum (UAM).
- 2.) Unverified collection data from the Automated National Catalog System (ANCS+). (ANCS+ voucher information on plants is found in two different files -- the main "Cape Krusenstern NM" file with 289 ANCS+ specimens, and the "Northwest Alaska Areas"

file with ANCS+ data for 25 specimens, all plants, and all collected in the Kotzebue, Alaska area.)

3.) Recorded plant observations.

Plant species list reviewer(s): Alan Batten, University of Alaska Museum and David Murray, University of Alaska Museum

Summary table of vascular plant data for CAKR entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	31
Number of species entered in NPSpecies²	389
<i>Number with status as Present</i>	20
<i>Number with status as Probably Present</i>	216
<i>Number with status as Unconfirmed</i>	153
Number of literature references entered in NPSpecies	0
Number of observations entered in NPSpecies³	60
Number of vouchers entered in NPSpecies	730
<i>Number of Vouchers from the University of Alaska Museum⁴</i>	416
<i>Number of Vouchers from the ANCS+ - Cape Krusenstern NM file⁵</i>	289
<i>Number of Vouchers from the ANCS+ - Northwest Alaska Areas file⁶</i>	25
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7.	
³ All observations made by Randy Meyers, U.S. Bureau of Land Management (Meyers 1992).	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Northern Plant Documentation Center"	
⁵ To find this data set in NPSpecies in the Cape Krusenstern NM file, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Converted from CAKR ANCS+, Cakrnh.zip by I&M".	
⁶ These vouchers are found in the Northwest Alaska Areas file and this is the only data this file contains.	

Fish

With the exception of two fish vouchers from UAM, all fish data entered into NPSpecies came from the literature. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature.

Fish species list reviewer(s): Bill Wilson, LGL (a private consulting firm); Fred Decicco, Alaska Department of Fish and Game and Bruce Wing, National Marine Fisheries Service.

Summary table of fish data for CAKR entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	36
Number of species entered in NPSpecies	60
<i>Number with status as Present</i>	26
<i>Number with status as Probably Present</i>	34
Number of literature references entered in NPSpecies	23
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	2
<i>Number of Vouchers from the University of Alaska Museum²</i>	2
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² To find this data set in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source for "University of Alaska Museum, Aquatics, Fairbanks".	

Birds

Literary references comprised the main source of evidence used for this group. Voucher information available for birds was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from UAM, ANCS+, and the Museum of Vertebrate Zoology (MVZ), University of California Berkeley. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. The Abundance and Residency fields were populated whenever enough information was available to do so.

Bird species list reviewer(s): Brad Andres, USFWS, Migratory Bird Management; Kevin Winker, UAM; Dan Gibson, UAM.

Summary table of bird data for CAKR entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	43
Number of species entered in NPSpecies	150
<i>Number with status as Present</i>	131
<i>Number with status as Probably Present</i>	18
<i>Number with status as False Report²</i>	1
Number of species with Abundance field populated	126
Number of species with Residency field populated	62
Number of literature references entered in NPSpecies	25

Summary table of bird data for CAKR entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	27
<i>Number of Vouchers from the University of Alaska Museum³</i>	<i>4</i>
<i>Number of Vouchers from the ANCS+ database⁴</i>	<i>4</i>
<i>Number of Vouchers from the MVZ collection⁵</i>	<i>19</i>
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "False Report" status identifies records with obsolete taxonomy/synonymy problems. ²	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "UAM Collection."	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source field for "Converted from CAKR ANCS+, Cakrnh.zip, by the I&M office."	
⁵ find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "MVZ 11/8/00."	

Mammals

Literary references comprised the main source of evidence used for this group. Voucher information available for mammals was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from both the UAM and ANCS+. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. The Abundance and Residency fields were populated whenever enough information was available to do so.

Mammal species list reviewer(s): Steve MacDonald, UAM.

Summary table of mammal data for CAKR entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	32
Number of species entered in NPSpecies	40
<i>Number with status as Present</i>	<i>27</i>
<i>Number with status as Probably Present</i>	<i>10</i>
<i>Number with status as Unconfirmed²</i>	<i>3</i>
Number of species with Abundance field populated	13
Number of species with Residency field populated	5
Number of literature references entered in NPSpecies	17
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	9
<i>Number of Vouchers from the University of Alaska Museum³</i>	<i>3</i>

Summary table of mammal data for CAKR entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

<i>Number of Vouchers from the ANCS+ database⁴</i>	6
<p>¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.</p> <p>² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations.²</p> <p>³ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "UAM Collection."</p> <p>⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source field for "Converted from CAKR ANCS+, Cakrn.zip, by the I&M office."</p>	

Appendix 5: Denali National Park and Preserve (DENA) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the final report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Denali National Park and Preserve (DENA), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for DENA follow the same general methodology presented in the final report. A more detailed account of the visit to Denali park headquarters by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group.

Park unit visit

A valuable segment of searching and compiling data included visiting park headquarters to search files for species evidence and interview available natural resource staff about species occurrence in the Park unit. Two AKNHP staff members visited park headquarters at Denali Park, Alaska on March 20-23, 2000. Our main contact at the park was Carl Roland, Plant Ecologist. Other park staff contacted were: Joe Van Horn, Natural Resource Management Specialist, who helped in organizing files from all disciplines especially vegetation; Patricia Owen, Biological Wildlife Technician, helped with the organization of materials at the park; Andrea Blakesley, Environmental Protection Specialist, provided considerable help with information about the small mammals of the area, including an electronic spreadsheet of the small mammals for the Park unit (Denali National Park, No date).

Carol McIntyre, Ornithologist at Denali, was not present at the park at the time of our visit, but in anticipation of our arrival she gathered material on bird species for us. Also contacted was Eric Rexstad, of the University of Alaska, Fairbanks, who has been studying small mammals at the park for many years, especially voles. Eric was not present at the park, but was contacted at the University of Alaska, Fairbanks. The majority of the visit was spent manually searching through the paper files made available.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds, mammals, and amphibians. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for DENA has been prepared for this report; refer to that list for references entered into NPSpecies. The citation list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data, followed by observations and, finally, voucher information. References and observations were entered manually from the original texts while vouchers were entered from electronic spreadsheets and databases. Summaries of data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

Vascular plant data entered to NPSpecies for DENA came from two sources.

- 1.) Unverified collection data from the Automated National Catalog System (ANCS+).
- 2.) Collection data provided by Carl Roland the botanist for DENA. This data included

specimens from the Herbarium of the University of Alaska Herbarium as well as recent, unprocessed collections made by Carl Roland for DENA.

Plant species list reviewer(s): Most of the data for this Park unit was provided by (and, hence, reviewed by) Carl Roland, the park botanist.

Summary table of vascular plant data for DENA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	26
Number of species entered in NPSpecies²	1309
<i>Number with status as Present</i>	983
<i>Number with status as Probably Present</i>	77
<i>Number with status as Unconfirmed</i>	249
Number of literature references entered in NPSpecies	0
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	6252
<i>Number of Vouchers from the ANCS+ database³</i>	2818
<i>Number of Vouchers from the DENA database⁴</i>	3434
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7.	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source for "Converted from DENA ANCS+, Denanh.zip, by I&M Office".	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Converted from DENA file 'Denaplt.xls' by the I&M Office". Within this dataset are vouchers from UAM and DENA, to find the UAM collections simultaneously search for "vascular plant" and the Specimen Owner/Location field for "University of Alaska Museum". To find the DENA collections search the Specimen Owner/Location field for "Denali National Park".	

Fish

With the exception of five fish vouchers from UAM, all fish data entered into NPSpecies came from the literature. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature.

Fish species list reviewer(s): Bill Wilson, LGL (a private consulting firm); Fred Decicco, Alaska Department of Fish and Game; and Bruce Wing, National Marine Fisheries Service.

Summary table of fish data for DENA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	15

Summary table of fish data for DENA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of species entered in NPSpecies	14
<i>Number with status as Present</i>	10
<i>Number with status as Probably Present</i>	3
<i>Number with status as Unconfirmed²</i>	1
Number of literature references entered in NPSpecies	10
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	5
<i>Number of Vouchers from the University of Alaska Museum³</i>	5
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² An "Unconfirmed" status for fish indicates that a voucher was the only evidence available for this species and the collection was made outside adjacent drainages to the park or has a vague geographic description.	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source for "University of Alaska Museum, Fairbanks".	

Birds

Literary references comprised the main source of evidence used for this group. Voucher information available for birds was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from UAM, ANCS+, and the Museum of Vertebrate Zoology (MVZ) at University of California Berkeley. There were eighteen personal observations entered from McIntyre 2000. The Abundance and Residency fields were populated whenever enough information was available to do so.

Bird species list reviewer(s): Kevin Winker, University of Alaska Museum and Dan Gibson, University of Alaska Museum.

Summary table of bird data for DENA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	33
Number of species entered in NPSpecies	183
<i>Number with status as Present</i>	158
<i>Number with status as Probably Present</i>	7
<i>Number with status as Unconfirmed²</i>	11
<i>Number with status as False Report³</i>	7
Number of species with Abundance field populated	158
Number of species with Residency field populated	125
Number of literature references entered in NPSpecies	30

Summary table of bird data for DENA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of observations entered in NPSpecies⁴	18
Number of vouchers entered in NPSpecies	196
<i>Number of Vouchers from the University of Alaska Museum⁵</i>	15
<i>Number of Vouchers from the ANCS+ database⁶</i>	64
<i>Number of Vouchers from the MVZ collection⁷</i>	117
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "Unconfirmed" status identifies species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations. ²	
³ The "False Report" status identifies records with obsolete taxonomy/synonymy problems.	
⁴ All observations from McIntyre 2000.	
⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "UAM Collection."	
⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source field for "Converted from DENA ANCS+, Denanh.zip, by the I&M office."	
⁷ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "MVZ 11/8/00." ²	

Mammals

Literary references comprised the main source of evidence used for this group. Voucher information available for mammals was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from the UAM, ANCS+, the Museum of Vertebrate Zoology (MVZ) at University of California Berkeley, and the University of Colorado Museum (UCM) at Boulder, Colorado. No observations were entered as the taxa mentioned in any available observation reports were already documented in voucher information or the literature. The Abundance and Residency fields were not populated due to lack of sufficient information.

Mammal species list reviewer(s): Steve MacDonald, University of Alaska Museum.

Summary table of mammal data for DENA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	36
Number of species entered in NPSpecies	61
<i>Number with status as Present</i>	37
<i>Number with status as Probably Present</i>	0
<i>Number with status as Unconfirmed²</i>	6
<i>Number with status as False Report³</i>	18
Number of species with Abundance field populated	0
Number of species with Residency field populated	0

Summary table of mammal data for DENA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

Number of literature references entered in NPSpecies	29
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	1489
<i>Number of Vouchers from the University of Alaska Museum⁴</i>	235
<i>Number of Vouchers from the ANCS+ database⁵</i>	853
<i>Number of Vouchers from the MVZ collection⁶</i>	106
<i>Number of Vouchers from the UCM collection⁷</i>	295

¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.

² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations.²

³The "False Report" status identifies records with obsolete taxonomy/synonymy problems.

⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "UAM Collection."

⁵To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source field for "Converted from DENA ANCS+, Denanh.zip, by the I&M office."

⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "MVZ 10/4/00."

⁷ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "UCM 11/04/00."

Amphibians

One amphibian species (*Rana sylvatica*) was entered in NPSpecies for the park and given a Park status of Present. There were four observations entered as evidence in NPSpecies for the amphibian. The observations came from wildlife observation cards found at the park. No vouchers were available, and no references were found to enter in NRBib.

Appendix 6: Gates of the Arctic National Park and Preserve (GAAR) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the final report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Gates of the Arctic National Park and Preserve (GAAR), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for GAAR follow the same general methodology presented in the final report. A more detailed account of the visit to Gates of the Arctic Park unit headquarters by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group.

Park unit visit

A valuable segment of searching and compiling data included visiting park headquarters to search files for species evidence and interview available natural resource staff about species occurrence in the Park unit. One AKNHP staff member visited park headquarters at Fairbanks, Alaska on February 22-25, 2000. Information for Yukon Charley Rivers National Preserve was collected simultaneously. Our main contact at the park was Shelli Swanson, Wildlife Biologist. Lisa Fox, Biological Science Technician, did much of the file searching, organization, and copying before our staff member arrived. A Procite database of references was provided to look for species-specific references. Patricia Rost, Supervisory Resource Management Specialist, was also contacted during the visit to the park.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds, mammals, and amphibians. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for GAAR has been prepared for this report; refer to that list for references entered into NPSpecies. The citation list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data, followed by observations and, finally, voucher information. References and observations were entered manually from the original texts while vouchers were entered from electronic spreadsheets and databases. Summaries of the data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

Vascular plant data entered to NPSpecies for GAAR came from four sources.

- 1.) Verified collection data from the herbarium at the University of Alaska Museum (UAM).
- 2.) Unverified collection data from the Automated National Catalog System (ANCS+).
- 3.) Verified collection data from Hulten 1941-1950.
- 4.) Species information from literature.

(No observations were entered for plants since all taxa mentioned in observation reports were either documented by vouchers or referred to in the literature.)

Plant species list reviewer(s): David Murray, University of Alaska Museum.

Summary table of vascular plant data for GAAR entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	61
Number of species entered in NPSpecies²	790
<i>Number with status as Present</i>	455
<i>Number with status as Probably Present</i>	126
<i>Number with status as Unconfirmed</i>	209
Number of literature references entered in NPSpecies	9
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	2625
<i>Number of Vouchers from the University of Alaska Museum³</i>	1652
<i>Number of Vouchers from the ANCS+ database⁴</i>	693
<i>Number of Vouchers from Hulten 1941-1950⁵</i>	280
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7.	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Northern Plant Documentation Center."	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Converted from GAAR ANCS+, Gaamh.zip by I&M."	
⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Hulten, Eric. 1941-1950. Flora of Alaska and Yukon. Lunds University, Stockholm, Sweden. 10vols."	

Fish

With the exception of seven fish vouchers from UAM, all fish data entered into NPSpecies came from literature. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature.

Fish species list reviewer(s): Bill Wilson, LGL (a private consulting firm); Fred Decicco, Alaska Department of Fish and Game; and Bruce Wing, National Marine Fisheries Service.

Summary table of fish data for GAAR entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	29
Number of species entered in NPSpecies	16

Summary table of fish data for GAAR entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
<i>Number with status as Present</i>	14
<i>Number with status as Probably Present</i>	2
Number of literature references entered in NPSpecies	17
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	7
<i>Number of Vouchers from the University of Alaska Museum²</i>	7
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² To find this voucher in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source for "University of Alaska Museum, Aquatics".	

Birds

Literary references comprised the main source of evidence used for this group. Voucher information available for birds was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from UAM, ANCS+, and the Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. There was not enough information to populate the Abundance field, but the Residency field was populated whenever enough information was available to do so.

Bird species list reviewer(s): Brad Andres, USFWS Migratory Bird Management; Kevin Winker, UAM; Dan Gibson, UAM.

Summary table of bird data for GAAR entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	29
Number of species entered in NPSpecies	134
<i>Number with status as Present</i>	124
<i>Number with status as Probably Present</i>	8
<i>Number with status as False Report²</i>	2
Number of species with Abundance field populated	0
Number of species with Residency field populated	34
Number of literature references entered in NPSpecies	22
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	20
<i>Number of Vouchers from the University of Alaska Museum³</i>	11
<i>Number of Vouchers from the ANCS+ database⁴</i>	1

Summary table of bird data for GAAR entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

<i>Number of Vouchers from the MVZ collection</i> ⁵	8
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "False Report" status identifies records with obsolete taxonomy/synonymy problems.	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "UAM Collection."	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source field for "Converted from GAAR ANCS+, Gaarnh.zip, by the I&M office."	
⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "MVZ 11/8/00." ²	

Mammals

Literary references comprised the main source of evidence used for this group. Voucher information available for mammals was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from UAM, ANCS+, Museum of Vertebrate Zoology (MVZ) at University of California Berkeley, Cornell University Museum (CUM) at Ithaca, New York, and University of Colorado Museum (UCM) at Boulder, Colorado. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. The Abundance and Residency fields were populated whenever enough information was available to do so

Mammal species list reviewer(s): Steve MacDonald, University of Alaska Museum.

Summary table of mammal data for GAAR entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

Number of citations entered or edited in NRBib ¹	41
Number of species entered in NPSpecies	40
<i>Number with status as Present</i>	30
<i>Number with status as Probably Present</i>	7
<i>Number with status as Unconfirmed</i> ²	1
<i>Number with status as False Report</i> ³	2
Number of species with Abundance field populated	13
Number of species with Residency field populated	1
Number of literature references entered in NPSpecies	29
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	423
<i>Number of Vouchers from the University of Alaska Museum</i> ⁴	179
<i>Number of Vouchers from the ANCS+ database</i> ⁵	215

Summary table of mammal data for GAAR entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

<i>Number of Vouchers from the MVZ collection</i> ⁶	15
<i>Number of Vouchers from the UCM collection</i> ⁷	8
<i>Number of Vouchers from the CUM collection</i> ⁸	6
<p>¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.</p> <p>² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations.²</p> <p>³ The "False Report" status identifies records with obsolete taxonomy/synonymy problems.</p> <p>⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "UAM Collection."</p> <p>⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source field for "Converted from GAAR ANCS+, Gaarnh.zip, by the I&M office."</p> <p>⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "MVZ 10/4/00."</p> <p>⁷ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "UCM 11/04/00."</p> <p>⁸ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "CUM 11/04/00."</p>	

Amphibians

One amphibian species (*Rana sylvatica*) was entered in NPSpecies for the park and given a Park status of Probably Present. The evidence for this species came from one reference, Hodge, 1976. This was the only reference entered for amphibians into NRBib. No other forms of evidence were used.

Appendix 7: Glacier Bay National Park and Preserve (GLBA) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the final report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Glacier Bay National Park and Preserve (GLBA), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for GLBA follow the same general methodology presented in the final report. A more detailed account of the visit to Glacier Bay headquarters by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group.

Park unit visit

A valuable segment of searching and compiling data included visiting park headquarters to search files for species evidence and interview available natural resource staff about species occurrence in the Park unit. Two AKNHP staff members visited park headquarters at Gustavus, Alaska on March 13-17, 2000. Our main contact at the park was Lewis Sharman, Resource Management Specialist. Other park staff contacted were Mary Kralovec, Resource Management Specialist, Christine Gabriel, Wildlife Biologist (Cetareans), Nathan Borson, Computer Specialist (GIS), Rusty Yerxa, Technical Writer. Chad Soiseth, fisheries biologist, wasn't present at the park, but was contacted from the park by phone for information. In addition to park staff John Piatt, Research Wildlife Biologist of the U.S.G.S. Alaska Biological Science and Greg Streveler, Icy Strait Environmental Services (private consultant), were contacted by phone.

The major amount of time was spent searching the BRD science information files, the library, and resource management files. We were given access to an Endnotes database with park bibliographic information to help find documents in the BRD, library, and resource management files. Access was also made to the U.S.G.S. Seabird and Forage Fish Web Site at the Alaska Biological Science for publications. The Wildlife Observations Database and the Near Shore Wildlife Observations databases were checked for species. Other sources searched were wildlife observation cards, investigators annual reports, archive files, and ranger reports.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds, mammals, and amphibians. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for GLBA has been prepared for this report; refer to that list for references entered into NPSpecies. The citation list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data, followed by observations and, finally, voucher information. References and observations were entered manually from the original texts while vouchers were entered from electronic spreadsheets and databases. Summaries of the data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

Vascular plant data entered to NPSpecies for GLBA came from four sources.

- 1.) Verified collection data from the herbarium at the University of Alaska Museum (UAM). There were few collections at UAM from within the boundaries of GLBA. Most collections from UAM were coded as Probably Present.
- 2.) Unverified collection data from the Automated National Catalog System (ANCS+). These collections were all coded as unconfirmed, pending verification.
- 3.) Verified collection data from Hulten 1941-1950.
- 4.) Species information from the *Glacier Bay Vascular Plant Checklist* (Matkin, Dena. 1996).

(No observations were entered for plants since all taxa mentioned in observation reports were either documented by vouchers or referred to in the literature.)

Plant species list reviewer(s): Gregg Streveler, Icy Strait Environmental Services (private consultant); Koren Bosworth (private consultant); Mary Stensvold, U.S. Forest Service.

Summary table of vascular plant data for GLBA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

Number of citations entered or edited in NRBib¹	39
Number of species entered in NPSpecies²	938
<i>Number with status as Present</i>	299
<i>Number with status as Probably Present</i>	327
<i>Number with status as Unconfirmed</i>	312
Number of literature references entered in NPSpecies	1
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	5610
<i>Number of Vouchers from the University of Alaska Museum³</i>	921
<i>Number of Vouchers from the ANCS+ database⁴</i>	4075
<i>Number of Vouchers from Hulten 1941-1950⁵</i>	614

¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.

² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7.

³ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Northern Plant Documentation Center."

⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Converted from GLBA ANCS+, Glbanh.zip by I&M."

⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Hulten, Eric. 1941-1950. Flora of Alaska and Yukon. Lunds University, Stockholm, Sweden. 10vols."

Fish

Literary references comprised the main source of evidence used for this group. Voucher information available for fish is concentrated on the more commonly recognized or abundant species. Voucher information came from both the UAM and ANCS+. Fifteen personal observations of fish were entered for this Park unit.

Fish species list reviewer(s): Bill Wilson, LGL (a private consulting firm); Fred Decicco, Alaska Department of Fish and Game (ADF&G); and Bruce Wing, National Marine Fisheries Service; Chad Soiseth, National Park Service; Greg Streveler, Icy Strait Environmental Services (private consultant).

Summary table of fish data for GLBA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	89
Number of species entered in NPSpecies	313
<i>Number with status as Present</i>	87
<i>Number with status as Probably Present</i>	215
<i>Number with status as Unconfirmed²</i>	5
<i>Number with status as False Report³</i>	6
Number of literature references entered in NPSpecies	37
Number of observations entered in NPSpecies⁴	15
Number of vouchers entered in NPSpecies	102
<i>Number of Vouchers from the University of Alaska Museum⁵</i>	100
<i>Number of Vouchers from the ANCS+ database⁶</i>	2
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² An "Unconfirmed" status for fish indicates that a voucher was the only evidence available for this species and the collection was made outside adjacent drainages to the park or has a vague geographic description.	
³ Species with False Report as status indicate a synonym.	
⁴ All observations made by Greg Streveler, Icy Strait Environmental Services (private consultant).	
⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source for "University of Alaska Museum, Aquatics, Fairbanks".	
⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source field for "Converted from GLBA ANCS+, Glbanh.zip, by the I&M office."	

Birds

Literary references comprised the main source of evidence used for this group. Voucher information available for birds was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from the UAM, ANCS+, Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley, Cornell University Museum (CUM) at Ithaca, New York, and the Burke Museum in Seattle,

Washington. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. The Abundance and Residency were populated whenever enough information was available to do so.

Bird species list reviewer(s): Brad Andres, USFWS Migratory Bird Management; Kevin Winker, UAM; Dan Gibson, UAM; Greg Streveler, Icy Strait Environmental Services (private consultant).

Summary table of bird data for GLBA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	26
Number of species entered in NPSpecies	233
<i>Number with status as Present</i>	221
<i>Number with status as Probably Present</i>	4
<i>Number with status as Unconfirmed²</i>	1
<i>Number with status as False Report³</i>	7
Number of species with Abundance field populated	207
Number of species with Residency field populated	159
Number of literature references entered in NPSpecies	21
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	211
<i>Number of Vouchers from the University of Alaska Museum⁴</i>	32
<i>Number of Vouchers from the ANCS+ database⁵</i>	27
<i>Number of Vouchers from the MVZ collection⁶</i>	144
<i>Number of Vouchers from the CUM collection⁷</i>	7
<i>Number of Vouchers from the Burke Museum collection⁸</i>	1
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations. ²	
³ The "False Report" status identifies records with obsolete taxonomy/synonymy problems.	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "UAM Collection."	
⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source field for "Converted from GLBA ANCS+, GIBanh.zip, by the I&M office."	
⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "MVZ 11/8/00."	
⁷ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "CUM 11/4/00."	
⁸ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "J. Rozdilsky, Curatorial Associate of Mammals."	

Mammals

Literary references comprised the main source of evidence used for this group. Voucher information available for mammals was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from the UAM, ANCS+, and the Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. The Abundance field was populated whenever enough information was available to do so. The Residency field was not populated due to lack of sufficient information.

Mammal species list reviewer(s): Steve MacDonald, University of Alaska Museum and Greg Streveler, Icy Strait Environmental Services (private consultant).

Summary table of mammal data for GLBA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	48
Number of species entered in NPSpecies	58
<i>Number with status as Present</i>	37
<i>Number with status as Probably Present</i>	16
<i>Number with status as Unconfirmed²</i>	4
<i>Number with status as False Report³</i>	1
Number of species with Abundance field populated	39
Number of species with Residency field populated	0
Number of literature references entered in NPSpecies	24
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	246
<i>Number of Vouchers from the University of Alaska Museum⁴</i>	42
<i>Number of Vouchers from the ANCS+ database⁵</i>	83
<i>Number of Vouchers from the MVZ collection⁶</i>	121
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations. ²	
³ The "False Report" status identifies records with obsolete taxonomy/synonymy problems.	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "UAM Collection."	
⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source field for "Converted from GLBA ANCS+, GIBanh.zip, by the I&M office."	
⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "MVZ 10/4/00."	

Amphibians

Four amphibian species (*Taricha granulose*, *Ambystoma gracile*, *Bufo boreas*, and *Rana sylvatica*) were entered for the park. *Bufo boreas* was given a Park Status of Present and the others a Park Status of Probably Present. The evidence for these four species came from five references and these were all entered into both NPSpecies and NRBib. Refer to the citation list for GLBA to see the citations for these references. No other forms of evidence were used.

Appendix 8: Katmai National Park and Preserve (KATM) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the final report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Katmai National Park and Preserve (KATM), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for KATM follow the same general methodology presented in the final report. A more detailed account of the visit to Katmai headquarters by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group.

Park unit visit

A valuable segment of searching and compiling data included visiting park headquarters to search files for species evidence and interview available natural resource staff about species occurrence in the Park unit. Two AKNHP staff members visited park headquarters at King Salmon, Alaska on February 15-18, 2000. Data collection for Alagnak Wild River and Aniakchak National Monument and Preserve was done simultaneously. Our main contact for the visit was Amanda Austin, Resource Management Specialist. Other members of the park staff contacted were Jane Bacchieri, Natural Resource Specialist; Richard Clark, Chief of Resource Management; and Troy Hamon, Fisheries Biologist. In addition to park staff, Susan Savage, USFWS Wildlife Biologist at Alaska Peninsula National Wildlife Refuge (NWR), was contacted via phone.

With the help and direction of Amanda Austin, the park library and numerous natural resource files were searched for plant, amphibian, bird, fish, and mammal species information. A Procite database that cataloged natural resource literature was used to help search for relevant documents. All data files made available were examined, although a thorough investigation of park Ranger Reports was not completed due to time constraints. The visit to the park was particularly helpful in providing backcountry reports and unpublished documents.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds and mammals. No evidence for amphibians was found. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for KATM has been prepared for this report; refer to that list for references entered into NPSpecies. The citation list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data, followed by observations and, finally, voucher information. References and observations were entered manually from the original texts while vouchers were entered from electronic spreadsheets and databases. Summaries of the data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

Vascular plant data entered to NPSpecies for KATM came from five sources.

- 1.) Verified collection data from the herbarium at the University of Alaska Museum (UAM).

- 2.) Unverified collection data from the Automated National Catalog System (ANCS+).
- 3.) Verified collection data from Hulten 1941-1950.
- 4.) Species information from literature.
- 5.) Recorded species observations.

Plant species list reviewer(s): David Murray, University of Alaska Museum and Carolyn Parker, University of Alaska Museum.

Summary table of vascular plant data for KATM entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	43
Number of species entered in NPSpecies²	868
<i>Number with status as Present</i>	291
<i>Number with status as Probably Present</i>	267
<i>Number with status as Unconfirmed</i>	310
Number of literature references entered in NPSpecies	8
Number of observations entered in NPSpecies³	31
Number of vouchers entered in NPSpecies	2087
<i>Number of Vouchers from the University of Alaska Museum⁴</i>	735
<i>Number of Vouchers from the ANCS+ database⁵</i>	802
<i>Number of Vouchers from Hulten 1941-1950⁶</i>	550
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7.	
³ All observations are from Rice, et al. 1992	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Northern Plant Documentation Center."	
⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Converted from KATM ANCS+, Katmnh.zip by I&M."	
⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Hulten, Eric. 1941-1950. Flora of Alaska and Yukon. Lunds University, Stockholm, Sweden. 10vols."	

Fish

Literary references comprised the main source of evidence used for this group. Voucher information available for fish is concentrated on the more commonly recognized or abundant species. All fish voucher information came from the UAM. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature.

Fish species list reviewer(s): Bill Wilson, LGL (private consulting firm); Fred Decicco, Alaska Department of Fish and Game (ADF&G); Bruce Wing, National Marine Fisheries Service; and Troy Hamon, National Park Service.

Summary table of fish data for KATM entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	62
Number of species entered in NPSpecies	41
<i>Number with status as Present</i>	31
<i>Number with status as Probably Present</i>	5
<i>Number with status as Unconfirmed²</i>	2
<i>Number with status as False Report³</i>	3
Number of literature references entered in NPSpecies	19
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	44
<i>Number of Vouchers from the University of Alaska Museum⁴</i>	44
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² An "Unconfirmed" status for fish indicates that a voucher was the only evidence available for this species and the collection was made outside adjacent drainages to the park or has a vague geographic description.	
³ Species with False Report as status indicate a synonym.	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source for "University of Alaska Museum, Aquatics".	

Birds

Literary references comprised the main source of evidence used for this group. Voucher information available for birds was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from the UAM, ANCS+, Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley, and Cornell University Museum (CUM) at Ithaca, New York. There were 28 personal observations entered for birds. The Abundance and Residency were populated whenever enough information was available to do so.

Bird species list reviewer(s): Richard Russell, ADF&G (King Salmon); Dick Sellers, ADF&G (King Salmon); Donna Dewhurst, USFWS (Anchorage, formerly Refuge Manager, Alaska Peninsula NWR); Susan Savage, USFWS (formerly wildlife biologist KATM); Brad Andres, USFWS Migratory Bird Management; Kevin Winker, UAM; and Dan Gibson, UAM. The Abundance and Residency fields were populated whenever enough information was available to do so.

Summary table of bird data for KATM entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

Number of citations entered or edited in NRBib¹	36
Number of species entered in NPSpecies	254
<i>Number with status as Present</i>	159
<i>Number with status as Probably Present</i>	23
<i>Number with status as Unconfirmed²</i>	7
<i>Number with status as False Report³</i>	65
Number of species with Abundance field populated	157
Number of species with Residency field populated	82
Number of literature references entered in NPSpecies	25
Number of observations entered in NPSpecies⁴	28
Number of vouchers entered in NPSpecies	19
<i>Number of Vouchers from the University of Alaska Museum⁵</i>	8
<i>Number of Vouchers from the ANCS+ database⁶</i>	4
<i>Number of Vouchers from the MVZ collection⁷</i>	6
<i>Number of Vouchers from the CUM collection⁸</i>	1

¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.

² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations.²

³The "False Report" status identifies records with obsolete taxonomy/synonymy problems.

⁴Personal bird observations from Donna Dewhurst, Wildlife biologist, U.S. Fish and Wildlife Service, Anchorage, AK; Richard Russell, Alaska Department of Fish and Game, King Salmon, AK; Susan Savage, Wildlife Biologist, U.S. Fish and Wildlife Service, King Salmon, AK. To find these observations in NPSpecies Observations simultaneously search for "bird" and the Data Source field for the observer's name.

⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "UAM Collection."

⁶To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source field for "Converted from KATM ANCS+, Katmnh.zip, by the I&M office."

⁷ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "MVZ 11/8/00."

⁸ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "CUM 11/04/00."

Mammals

Literary references comprised the main source of evidence used for this group. Voucher information available for mammals was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from UAM, ANCS+, and the Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley. There were seven personal observations entered for mammals. The Abundance field was populated whenever enough information was available to do so. The Residency field was not populated due to lack of sufficient information.

Mammal species list reviewer(s): Richard Russell, ADF&G (King Salmon); Dick Sellers, ADF&G (King Salmon); Donna Dewhurst, USFWS (Anchorage, formerly Refuge Manager, Alaska Peninsula NWR); Susan Savage, USFWS (formerly wildlife biologist KATM); and Steve MacDonald, UAM.

Summary table of mammal data for KATM entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	34
Number of species entered in NPSpecies	69
<i>Number with status as Present</i>	39
<i>Number with status as Probably Present</i>	4
<i>Number with status as Unconfirmed²</i>	14
<i>Number with status as False Report³</i>	12
Number of species with Abundance field populated	3
Number of species with Residency field populated	0
Number of literature references entered in NPSpecies	27
Number of observations entered in NPSpecies⁴	7
Number of vouchers entered in NPSpecies	34
<i>Number of Vouchers from the University of Alaska Museum⁵</i>	4
<i>Number of Vouchers from the ANCS+ database⁶</i>	28
<i>Number of Vouchers from the MVZ collection⁷</i>	2
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations. ²	
³ The "False Report" status identifies records with obsolete taxonomy/synonymy problems.	
⁴ Personal mammal observations from Dick Sellers, Wildlife Biologist, Alaska Department of Fish and Game, King Salmon, AK; and Richard Russell, Alaska Department of Fish and Game, King Salmon, AK.	
⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "UAM Collection."	
⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source field for "Converted from KATM ANCS+, Katmnh.zip, by the I&M office."	
⁷ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "MVZ 10/4/00."	

Appendix 9: Kenai Fjords National Park (KEFJ) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the final report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Kenai Fjords National Park (KEFJ), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for KEFJ follow the same general methodology presented in the final report. A more detailed account of the visit to Kenai Fjords headquarters by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group.

Park unit visit

A valuable segment of searching and compiling data included visiting park headquarters to search files for species evidence and interview available natural resource staff about species occurrences in the Park unit. Two AKNHP staff members visited park headquarters at Seward, Alaska on February 7-10, 2000. Our main contact at the park was Jeff Troutman, Chief of Resource Management. Other park staff contacted for information were Peter Armato, Coastal Resource Specialist and Mike Tetreau, Natural Resource Specialist.

Besides park staff, meetings were also made with Seward Sealife Center staff members Michelle Miller, Seabird Specialist, and Richard Hocking, Marine Fisheries Specialist. Richard Hocking supplied us with a list of marine sealife for the Seward area. Contact was made via phone with Bill Schuster, U.S. Forest Service and a member of the local Audubon Society, for information on land bird counts. The University of Alaska Fairbanks Institute of Marine Sciences was contacted, however their research has been focused on invertebrates and deep-sea fishes.

The major amount of time at the headquarters was spent searching the Resource Management Files (RMF) for park species related data. We were given access to a Procite database of RMF citations was helpful in locating species-specific files. Other databases accessed were a wildlife observations database of observation card and ranger sightings, and a plant observations database of observations made by Kevin Golden, a former park service employee. Other areas searched at the headquarters were the archival data and the library.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds, mammals, and amphibians. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for KEFJ has been prepared for this report; refer to that list for references entered into NPSpecies. The citation list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data, followed by observations and, finally, voucher information. References were entered manually from the original texts while observations and vouchers were entered from electronic spreadsheets and databases. Summaries of the data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

Vascular plant data entered to NPSpecies for KEFJ came from four sources.

- 1.) Verified collection data from the herbarium at the University of Alaska Museum (UAM).
- 2.) Unverified collection data from the Automated National Catalog System (ANCS+).
- 3.) Species information from literature.
- 4.) A plant observations database provided by KEFJ.

Plant species list reviewer(s): David Murray, University of Alaska Museum.

Summary table of vascular plant data for KEFJ entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	20
Number of species entered in NPSpecies²	660
<i>Number with status as Present</i>	<i>136</i>
<i>Number with status as Probably Present</i>	<i>378</i>
<i>Number with status as Unconfirmed</i>	<i>146</i>
Number of literature references entered in NPSpecies	2
Number of observations entered in NPSpecies³	190
Number of vouchers entered in NPSpecies	1644
<i>Number of Vouchers from the University of Alaska Museum⁴</i>	<i>1183</i>
<i>Number of Vouchers from the ANCS+ database⁵</i>	<i>461</i>
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7.	
³ All plant observations are from a plant observations database available at KEFJ of observations made by Kevin Golden, a former KEFJ employee. This database is electronic and was sent to the national I&M office prior to February 2000 for upload to NPSpecies by KEFJ. This file is called Kefjplan.mdb by the national I&M office, and the data from it can be found in NPSpecies by searching the observations Data Source field for "Converted from KEFJ Kefjplan.mdb by I & M Office."	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Northern Plant Documentation Center."	
⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Converted from KEFJ ANCS+, Kefjnh.zip by I&M."	

Fish

Literary references comprised the main source of evidence used for this group. There is one fish voucher from ANCS+ and thirty-four fish observations entered for this Park unit.

Fish species list reviewer(s): Bill Wilson, LGL (a private consulting firm); Fred Decicco, Alaska Department of Fish and Game (ADF&G); and Bruce Wing, National Marine Fisheries Service.

Summary table of fish data for KEFJ entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	13
Number of species entered in NPSpecies	40
<i>Number with status as Present</i>	30
<i>Number with status as Probably Present</i>	10
Number of literature references entered in NPSpecies	7
Number of observations entered in NPSpecies²	34
Number of vouchers entered in NPSpecies	1
<i>Number of Vouchers from the ANCS+ database³</i>	1
<p>¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.</p> <p>² All fish observations are from an animal observations database available at KEFJ. The database includes bird, fish, and mammal observations. The sightings were made by various observers. This database is electronic and was sent to the national I&M office prior to February 2000 for upload to NPSpecies by KEFJ. This file is called Kefjbird.mdb by the national I&M office and the data from it can be found in the NPSpecies observations database Data Source field as "Converted from KEFJ Kefjbird.mdb by I & M Office".</p> <p>³ To find this data set in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source field for "Converted from KEFJ ANCS+, Kefjnh.zip, by the I&M office."</p>	

Birds

Literary references comprised the main source of evidence used for this group. Voucher information available for birds was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from both the ANCS+ and the Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley. There are 1,183 personal observations entered for birds. The Abundance and Residency fields were populated when enough information was available to do so.

Bird species list reviewer(s): Brad Andres, USFWS Migratory Bird Management; Kevin Winker, UAM; and Dan Gibson, UAM.

Summary table of bird data for KEFJ entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	19
Number of species entered in NPSpecies	210
<i>Number with status as Present</i>	188
<i>Number with status as Probably Present</i>	9
<i>Number with status as Unconfirmed²</i>	7
<i>Number with status as False Report³</i>	6

Summary table of bird data for KEFJ entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of species with Abundance field populated	178
Number of species with Residency field populated	178
Number of literature references entered in NPSpecies	13
Number of observations entered in NPSpecies⁴	1183
Number of vouchers entered in NPSpecies	5
<i>Number of Vouchers from the ANCS+ database⁵</i>	<i>3</i>
<i>Number of Vouchers from the MVZ collection⁶</i>	<i>2</i>
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations. ²	
³ The "False Report" status identifies records with obsolete taxonomy/synonymy problems.	
⁴ All bird observations are from an animal observations database available at KEFJ. The database includes bird, fish, and mammal observations. The sightings are made by various observers. This database is electronic and was sent to the national I&M office prior to February 2000 for upload to NPSpecies by KEFJ. This file is called Kefjbird.mdb by the national I&M office and the data from it can be found in the NPSpecies observations database Data Source field as "Converted from KEFJ Kefjbird.mdb by I & M Office".	
⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source field for "Converted from KEFJ ANCS+, Kefjnh.zip, by the I&M office."	
⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "MVZ 10/4/00."	

Mammals

Literary references comprised the main source of evidence used for this group. Voucher information available for mammals was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from both the ANCS+ and the Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley. There are 1,232 personal observations entered. The Abundance and Residency fields were populated when enough information was available to do so.

Mammal species list reviewer(s): Steve MacDonald, University of Alaska Museum.

Summary table of mammal data for KEFJ entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	12
Number of species entered in NPSpecies	54
<i>Number with status as Present</i>	<i>42</i>
<i>Number with status as Probably Present</i>	<i>2</i>
<i>Number with status as Unconfirmed²</i>	<i>9</i>
<i>Number with status as False Report³</i>	<i>1</i>

Summary table of mammal data for KEFJ entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of species with Abundance field populated	36
Number of species with Residency field populated	3
Number of literature references entered in NPSpecies	9
Number of observations entered in NPSpecies⁴	1232
Number of vouchers entered in NPSpecies	40
<i>Number of Vouchers from the ANCS+ database⁵</i>	<i>10</i>
<i>Number of Vouchers from the MVZ collection⁶</i>	<i>30</i>
<p>¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.</p> <p>² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations.</p> <p>³ The "False Report" status identifies records with obsolete taxonomy/synonymy problems.</p> <p>⁴ All mammal observations are from an animal observations database available at KEFJ. The database includes bird, fish, and mammal observations. The sightings are made by various observers. This database is electronic and was sent to the national I&M office prior to February 2000 for upload to NPSpecies by KEFJ. This file is called Kefjbird.mdb by the national I&M office and the data from it can be found in the NPSpecies observations database Data Source field as "Converted from KEFJ Kefjbird.mdb by I & M Office."</p> <p>⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source field for "Converted from KEFJ ANCS+, Kefjnh.zip, by the I&M office."</p> <p>⁷ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "MVZ 11/8/00."</p>	

Amphibians

One amphibian species (*Rana sylvatica*) was entered for the park with a Park Status of Probably Present. The evidence for this species came from a reference, Hodge, R. P. 1976. This was the only reference entered for amphibians into NRBib. No other forms of evidence were used.

Appendix 10: Klondike Gold Rush National Historic Park (KLG0) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the final report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Klondike Gold Rush National Historic Park (KLG0), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for KLG0 follow the same general methodology presented in the final report. A more detailed account of the visit to Klondike Gold Rush headquarters by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group.

Park unit visit

A valuable segment of searching and compiling data included visiting the park headquarters to search files for species evidence and interview available natural resource staff about species occurrence in the Park unit. Two AKNHP staff members visited park headquarters at Skagway, Alaska on June 5-8, 2000. Our main contact at the park was Elaine Furbish, Natural Resource Management Specialist. Other park staff contacted while at the park were Jan Jorgeson, Botanist, and Debra Sanders, Museum Curator, for information on the park museum collections and the ANCS+ database.

The major amount of time at the park was spent searching through the Natural Resources Division files. These files ranged in content from field and ranger notebooks, species lists, to reference articles. The park was in the process of filing and cataloging all items into a Procite database during our visit. We were given access to that database to help us search for information. For plants, most data collected was in the form of lists from the Natural Resources files. Prior to our visit, Claudia Rector, former botanist at KLG0, had sent a spreadsheet of herbarium data to Rob Lipkin, Botanist for AKNHP. For animals, we compiled data from the Wildlife Observation Cards and Elaine Furbish made recommendations about observer reliability for those observation cards. A list of species observed was made from the KLG0 Alaska Off-Road Point Count Data 1995-1999 for bird observations during the breeding season. In addition to the files already mentioned the library was searched thoroughly.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds, mammals, and amphibians. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for KLG0 has been prepared for this report; refer to that list for references entered into NPSpecies. The citation list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data, followed by observations and, finally, voucher information. References and observations were entered manually from the original texts while vouchers were entered electronically. Summaries of the data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

Vascular plant data entered to NPSpecies for KLG0 came from five sources.

- 1.) Verified collection data from the herbarium at the University of Alaska Museum (UAM).
- 2.) Verified and unverified collection data from the Automated National Catalog System (ANCS+).
- 3.) Verified collection data from Hulten 1941-1950.
- 4.) Species information from literature.
- 5.) Personal observations of species.

Plant species list reviewer(s): Gregg Streveler, Icy Strait Environmental Services (private consultant); Koren Bosworth, (private consultant); Mary Stensvold, U.S. Forest Service; and Carolyn Parker, University of Alaska Museum.

Summary table of vascular plant data for KLGO entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

Number of citations entered or edited in NRBib¹	26
Number of species entered in NPSpecies²	880
<i>Number with status as Present</i>	389
<i>Number with status as Probably Present</i>	173
<i>Number with status as Unconfirmed</i>	318
Number of literature references entered in NPSpecies	4
Number of observations entered in NPSpecies³	44
Number of vouchers entered in NPSpecies	1513
<i>Number of Vouchers from the University of Alaska Museum⁴</i>	277
<i>Number of Vouchers from the ANCS+ database⁵</i>	1007
<i>Number of Vouchers from the Hulten 1941-1950⁶</i>	229

¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.

² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7.

³ All plant observations are from personal observations made by Gregg Streveler, Icy Strait Environmental Services (private consultant) or Koren Bosworth (private consultant). To find the either observer in NPSpecies observations search the Data Source field for the observer's name

⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Northern Plant Documentation Center."

⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Converted from KLGO ANCS+, Klgonh.zip by I&M."

⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Hulten, Eric. 1941-1950. Flora of Alaska and Yukon. Lunds University, Stockholm, Sweden. 10vols."

Fish

Literary references were the only source of evidence used for this group. There were no vouchers or observations found to enter for this Park unit.

Fish species list reviewer(s): Bill Wilson, LGL (a private consulting firm); Fred Decicco, Alaska Department of Fish and Game (ADF&G); Bruce Wing, National Marine Fisheries Service; Gregg Streveler, Icy Strait Environmental Services (private consultant).

Summary table of fish data for KLG0 entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	14
Number of species entered in NPSpecies	11
<i>Number with status as Present</i>	6
<i>Number with status as Probably Present</i>	5
Number of literature references entered in NPSpecies	9
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	0
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	

Birds

Literary references comprised the main source of evidence used for this group. Voucher information available for birds was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from both the UAM and ANCS+. No observations were entered. The Abundance and Residency fields were populated whenever enough information was available to do so.

Bird species list reviewer(s): Brad Andres, USFWS Migratory Bird Management; Kevin Winker, UAM; Dan Gibson, UAM; Gregg Streveler, Icy Strait Environmental Services (private consultant).

Summary table of bird data for KLG0 entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	15
Number of species entered in NPSpecies	163
<i>Number with status as Present</i>	138
<i>Number with status as Probably Present</i>	23
<i>Number with status as False Report²</i>	2
Number of species with Abundance field populated	0
Number of species with Residency field populated	112
Number of literature references entered in NPSpecies	13

Summary table of bird data for KLG0 entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	18
<i>Number of Vouchers from the University of Alaska Museum³</i>	<i>9</i>
<i>Number of Vouchers from the ANCS+ database⁴</i>	<i>9</i>
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "False Report" status identifies records with obsolete taxonomy/synonymy problems.	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "UAM Collection."	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source field for "Converted from KLG0 ANCS+, Klgonh.zip, by the I&M office."	

Mammals

Literary references comprised the main source of evidence used for this group. Voucher information available for mammals was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from both the UAM and ANCS+. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. The Abundance and Residency fields were not populated due to lack of sufficient information.

Mammal species list reviewer(s): Steve MacDonald, University of Alaska Museum and Gregg Streveler, Icy Strait Environmental Services (private consultant).

Summary table of mammal data for KLG0 entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	17
Number of species entered in NPSpecies	45
<i>Number with status as Present</i>	<i>33</i>
<i>Number with status as Probably Present</i>	<i>6</i>
<i>Number with status as Unconfirmed²</i>	<i>3</i>
<i>Number with status as False Report³</i>	<i>1</i>
<i>Number with status as Historic⁴</i>	<i>2</i>
Number of species with Abundance field populated	0
Number of species with Residency field populated	0
Number of literature references entered in NPSpecies	16
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	60
<i>Number of Vouchers from the University of Alaska Museum⁵</i>	<i>47</i>

Summary table of mammal data for KLGO entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

<i>Number of Vouchers from the ANCS+ database⁶</i>	13
<p>¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.</p> <p>² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations.</p> <p>³ The "False Report" status identifies records with obsolete taxonomy/synonymy problems.</p> <p>⁴ Both Bovidae and Equus from ANCS+ files were entered as Historic.</p> <p>⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "UAM Collection."</p> <p>⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source field for "Converted from KLGO ANCS+, KLGO nh.zip, by the I&M office."</p>	

Amphibians

Three amphibian species (*Bufo boreas*, *Rana sylvatica*, and *Rana pretiosa*) were entered for the park. All were given a Park Status of Probably Present. The evidence for these species came from three references and these were all entered into both NPSpecies and NRBib. Refer to the citation list for KLGO to see the citations for these references.

Appendix 11: Kobuk Valley National Park (KOVA) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the final report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Kobuk Valley National Park (KOVA), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for KOVA follow the same general methodology presented in the final report. A more detailed account of the visit to Kobuk Valley headquarters by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group.

Park unit visit

A valuable segment of searching and compiling data included visiting park headquarters to search files for species evidence and interview available natural resource staff about species occurrence in the Park unit. Two AKNHP staff members visited park headquarters at Nome, Alaska on April 11 -12, 2000 and then traveled to Kotzebue, Alaska on April 13-14, 2000 to search for additional data. Data collection for Cape Krusenstern National Monument, Kobuk Valley National Park, and Noatak National Preserve was done simultaneously. Our main contact for the visit was Peter Neitlich, Botanist for Western Arctic National Parklands. Other park staff contacted were Lois Dolle-Molle, Supervisory Resource Management Specialist, and Brad Shults, Wildlife Biologist. In addition to park staff, contacts were made with Randy Meyers, of the U. S. Bureau of Land Management, for information about collections she has made in the parks, and LeAnn Ayers, U.S. Fish and Wildlife Service (USFWS). The majority of the visit was spent manually searching through the paper files made available.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds, mammals, and amphibians. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for KOVA has been prepared for this report; refer to that list for references entered into NPSpecies. The citation list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data and then voucher information. References were entered manually from the original texts while vouchers were entered electronically. There were no observations entered for this Park unit. Summaries of the data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

Vascular plant data entered to NPSpecies for KOVA came from three sources.

- 1.) Verified collection data from the herbarium at the University of Alaska Museum (UAM).
- 2.) Unverified collection data from the Automated National Catalog System (ANCS+).
- 3.) Species information from literature.

(No observations were entered for plants since all taxa mentioned in observation reports were either documented by vouchers or referred to in the literature.)

Plant species list reviewer(s): Carolyn Parker, University of Alaska Museum.

Summary table of vascular plant data for KOVA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	40
Number of species entered in NPSpecies²	463
<i>Number with status as Present</i>	269
<i>Number with status as Probably Present</i>	46
<i>Number with status as Unconfirmed</i>	148
Number of literature references entered in NPSpecies	2
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	932
<i>Number of Vouchers from the University of Alaska Museum³</i>	761
<i>Number of Vouchers from the ANCS+ database⁴</i>	171
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7.	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Northern Plant Documentation Center."	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Converted from KOVA ANCS+, Kovanh.zip by I&M."	

Fish

Literary references comprised the main source of evidence used for this group. Voucher information available for fish was sparse and concentrated on the more commonly recognized or abundant species. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature.

Fish species list reviewer(s): Bill Wilson, LGL (a private consulting firm); Fred Decicco, Alaska Department of Fish and Game (ADF&G); Bruce Wing, National Marine Fisheries Service

Summary table of fish data for KOVA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	32
Number of species entered in NPSpecies	24
<i>Number with status as Present</i>	16

Summary table of fish data for KOVA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
<i>Number with status as Probably Present</i>	7
<i>Number with status as Unconfirmed²</i>	1
Number of literature references entered in NPSpecies	24
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	18
<i>Number of Vouchers from the University of Alaska Museum³</i>	11
<i>Number of Vouchers from the ANCS+ database⁴</i>	7
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² An "Unconfirmed" status for fish indicates that a voucher was the only evidence available for this species and the collection was made outside adjacent drainages to the park or has a vague geographic description.	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source for "University of Alaska Museum, Aquatics, Fairbanks".	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source field for "Converted from KOVA ANCS+, Kovanh.zip, by the I&M office."	

Birds

Literary references comprised the main source of evidence used for this group. Voucher information available for birds was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from the ANCS+ database. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. The Abundance and Residency fields were populated when there was information available.

Bird species list reviewer(s): Brad Andres, USFWS Migratory Bird Management; Kevin Winker, UAM; and Dan Gibson, UAM.

Summary table of bird data for KOVA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	22
Number of species entered in NPSpecies	125
<i>Number with status as Present</i>	109
<i>Number with status as Probably Present</i>	16
Number of species with Abundance field populated	109
Number of species with Residency field populated	38
Number of literature references entered in NPSpecies	9

Summary table of bird data for KOVA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	3
<i>Number of Vouchers from the ANCS+ database²</i>	3
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source field for "Converted from KOVA ANCS+, Kovanh.zip, by the I&M office."	

Mammals

Literary references comprised the main source of evidence used for this group. Voucher information available for mammals was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from both the UAM and ANCS+. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. The Abundance and Residency fields were populated when there was information available.

Mammal species list reviewer(s): Steve MacDonald, University of Alaska Museum.

Summary table of mammal data for KOVA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	17
Number of species entered in NPSpecies	31
<i>Number with status as Present</i>	23
<i>Number with status as Probably Present</i>	7
<i>Number with status as Unconfirmed²</i>	1
Number of species with Abundance field populated	2
Number of species with Residency field populated	1
Number of literature references entered in NPSpecies	7
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	16
<i>Number of Vouchers from the University of Alaska Museum³</i>	8
<i>Number of Vouchers from the ANCS+ database⁴</i>	8
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations.	

Summary table of mammal data for KOVA entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

³To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "UAM Collection."

⁴To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source field for "Converted from KOVA ANCS+, Kovanh.zip, by the I&M office."

Amphibians

One amphibian species (*Rana sylvatica*) was entered for the park with a Park Status of Present. The evidence put into NPSpecies for this species came from one reference, Melchior, H.R. et al. 1976. This reference and two others were entered into NRBib. No other forms of evidence were used.

Appendix 12: Lake Clark National Park and Preserve (LACL) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the final report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Lake Clark National Park and Preserve (LACL), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for LACL follow the same general methodology presented in the final report. A more detailed account of the visit to Lake Clark headquarters by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group.

Park unit visit

A valuable segment of searching and compiling data included visiting park headquarters to search files for species evidence and interview available natural resource staff about species occurrence in the Park unit. Two AKNHP staff members visited park headquarters at Port Alsworth, Alaska on May 2-4, 2000. Our main contact at this park was Penny Knuckles, Chief of Resource Management. Other park staff contacted while at the park were: Phil Caswell, Botanist, who assisted with plant information, and Judy Putera, Wildlife Technician, who provided information on vertebrates.

Prior to our visit to the park, Phil Caswell had been in contact with Rob Lipkin, Botanist with AKNHP, and had sent all his plant reports to AKNHP. The majority of time at LACL was spent searching through the Natural Resources Division files. These files contained information that ranged in content from field notebooks, unpublished reports, and ranger reports to referenced articles. The LACL library was searched thoroughly – most information gleaned from here was in the form of subsistence reports.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds, mammals, and amphibians. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for LACL has been prepared for this report; refer to that list to see references entered into NPSpecies. The citation list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data followed by voucher information. References were entered manually from the original texts while vouchers were entered electronically. There were no observations entered for this Park unit. Summaries of the data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

Vascular plant data entered to NPSpecies for LACL came from four sources.

- 1.) Verified collection data from the herbarium at the University of Alaska Museum (UAM).
- 2.) Unverified collection data from the Automated National Catalog System (ANCS+).
- 3.) Verified voucher information from Hulten 1941-1950.
- 4.) Species information from literature.

(No observations were entered for plants since all taxa mentioned in observation reports were either documented by vouchers or referred to in the literature.)

Plant species list reviewer(s): Phil Caswell, National Park Service and Carolyn Parker, University of Alaska Museum.

Summary table of vascular plant data for LACL entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

Number of citations entered or edited in NRBib¹	22
Number of species entered in NPSpecies²	1358
<i>Number with status as Present</i>	576
<i>Number with status as Probably Present</i>	109
<i>Number with status as Unconfirmed</i>	673
Number of literature references entered in NPSpecies	3
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	1707
<i>Number of Vouchers from the University of Alaska Museum³</i>	849
<i>Number of Vouchers from the ANCS+ database⁴</i>	785
<i>Number of Vouchers from Hulten 1941-1950⁵</i>	73

¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.

² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7.

³ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Northern Plant Documentation Center."

⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Converted from LACL ANCS+, Laclnh.zip by I&M."

⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Hulten, Eric. 1941-1950. Flora of Alaska and Yukon. Lunds University, Stockholm, Sweden. 10vols."

Fish

Literary references comprised the main source of evidence used for this group. There are six fish vouchers from UAM. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature.

Fish species list reviewer(s): Bill Wilson, LGL (a private consulting firm); Fred Decicco, Alaska Department of Fish and Game (ADF&G); and Bruce Wing, National Marine Fisheries Service.

Summary table of fish data for LACL entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

Summary table of fish data for LACL entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	31
Number of species entered in NPSpecies	55
<i>Number with status as Present</i>	43
<i>Number with status as Probably Present</i>	3
<i>Number with status as Unconfirmed²</i>	8
<i>Number with status as False Report³</i>	1
Number of literature references entered in NPSpecies	12
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	6
<i>Number of Vouchers from the University of Alaska Museum⁴</i>	6
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² An "Unconfirmed" status for fish indicates that a voucher was the only evidence available for this species and the collection was made outside adjacent drainages to the park or has a vague geographic description.	
³ Species with False Report as status indicate a synonym.	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source for "University of Alaska Museum, Aquatics, Fairbanks, AK".	

Birds

Literary references comprised the main source of evidence used for this group. Voucher information available for birds was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from the Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley. There are no personal observations entered for birds. The Abundance and Residency fields were populated whenever enough information was available to do so.

Bird species list reviewer(s): Brad Andres, USFWS – Migratory Bird Management; Kevin Winker, UAM; and Dan Gibson, UAM

Summary table of bird data for LACL entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	19
Number of species entered in NPSpecies	189
<i>Number with status as Present</i>	160
<i>Number with status as Probably Present</i>	6
<i>Number with status as Unconfirmed²</i>	10

Summary table of bird data for LACL entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
<i>Number with status as False Report</i> ³	13
Number of species with Abundance field populated	170
Number of species with Residency field populated	157
Number of literature references entered in NPSpecies	14
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	9
<i>Number of Vouchers from the MVZ collection</i> ⁴	9
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations. ²	
³ The "False Report" status identifies records with obsolete taxonomy/synonymy problems.	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "MVZ 11/8/00."	

Mammals

Literary references comprised the main source of evidence used for this group. Voucher information available for mammals was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from the Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. The Abundance and Residency fields were populated when enough information was available to do so.

Mammal species list reviewer(s): Steve MacDonald, University of Alaska Museum.

Summary table of mammal data for LACL entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib ¹	17
Number of species entered in NPSpecies	45
<i>Number with status as Present</i>	37
<i>Number with status as Probably Present</i>	8
Number of species with Abundance field populated	3
Number of species with Residency field populated	5
Number of literature references entered in NPSpecies	9
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	5

Summary table of mammal data for LAACL entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

<i>Number of Vouchers from the MVZ collection</i> ²	5
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "MVZ 10/4/00." ²	

Amphibians

One amphibian species (*Rana sylvatica*) was entered for the park with a Park Status of Probably Present. The evidence used in NPSpecies for this species came from two personal observations by Richard Russell, Alaska Department of Fish and Game (King Salmon) and from one reference, Hodge, R. P. 1976. This reference and one other were entered into NRBib. No other forms of evidence were used.

Appendix 13: Noatak National Preserve (NOAT) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the final report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Noatak National Preserve (NOAT), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for NOAT follow the same general methodology presented in the final report. A more detailed account of the visit to Noatak headquarters by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group.

Park unit visit

A valuable segment of searching and compiling data included visiting park headquarters to search files for species evidence and interview available natural resource staff about species occurrence in the Park unit. Two AKNHP staff members visited park headquarters at Nome, Alaska on April 11 -12, 2000 and then traveled to Kotzebue, Alaska on April 13-14, 2000 to search for additional data. Data collection for Cape Krusenstern National Monument, Kobuk Valley National Park, and Noatak National Preserve was done simultaneously. Our main contact for the visit was Peter Neitlich, Botanist for Western Arctic National Parklands. Other park staff contacted were Lois Dolle-Molle, Supervisory Resource Management Specialist, and Brad Shults, Wildlife Biologist. In addition to park staff, contacts were made with Randy Meyers, of the U. S. Bureau of Land Management, for information about collections she has made in the parks, and LeAnn Ayers, U.S. Fish and Wildlife Service (USFWS). The majority of the visit was spent manually searching through the paper files made available.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds, mammals, and amphibians. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for NOAT has been prepared for this report; refer to that list for references entered into NPSpecies. The citation list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data, followed by observations and, finally, voucher information. References and observations were entered manually from the original texts while vouchers were entered electronically. Summaries of the data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

Vascular plant data entered to NPSpecies for NOAT came from four sources.

- 1.) Verified collection data from the herbarium at the University of Alaska Museum (UAM).
- 2.) Unverified collection data from the Automated National Catalog System (ANCS+).
- 3.) Species information from literature.
- 4.) Recorded plant observations.

Plant species list reviewer(s): Alan Batten, University of Alaska Museum.

Summary table of vascular plant data for NOAT entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	42
Number of species entered in NPSpecies²	688
<i>Number with status as Present</i>	209
<i>Number with status as Probably Present</i>	306
<i>Number with status as Unconfirmed</i>	173
Number of literature references entered in NPSpecies	3
Number of observations entered in NPSpecies³	20
Number of vouchers entered in NPSpecies	1502
<i>Number of Vouchers from the University of Alaska Museum⁴</i>	1111
<i>Number of Vouchers from the ANCS+ database⁵</i>	391
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7.	
³ All observations made by Randy Meyers, U.S. Bureau of Land Management (Meyers 2000).	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Northern Plant Documentation Center."	
⁵ ⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Converted from NOAT ANCS+, Noatnh.zip by I&M."	

Fish

Literary references comprised the main source of evidence used for this group. No vouchers were found for fish in NOAT. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature.

Fish species list reviewer(s): Bill Wilson, LGL (a private consulting firm); Fred Decicco, Alaska Department of Fish and Game (ADF&G); Bruce Wing, National Marine Fisheries Service.

Summary table of fish data for NOAT entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	33
Number of species entered in NPSpecies	24
<i>Number with status as Present</i>	22
<i>Number with status as Probably Present</i>	2

Summary table of fish data for NOAT entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of literature references entered in NPSpecies	22
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	0
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	

Birds

Literary references comprised the main source of evidence used for this group. Voucher information available for birds was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from both UAM and the Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. The Abundance and Residency fields were populated whenever there was enough information available.

Bird species list reviewer(s): Brad Andres, USFWS Migratory Bird Management; Kevin Winker, UAM; and Dan Gibson, UAM.

Summary table of bird data for NOAT entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	27
Number of species entered in NPSpecies	148
<i>Number with status as Present</i>	114
<i>Number with status as Probably Present</i>	29
<i>Number with status as Unconfirmed²</i>	2
<i>Number with status as False Report³</i>	3
Number of species with Abundance field populated	109
Number of species with Residency field populated	81
Number of literature references entered in NPSpecies	9
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	126
<i>Number of Vouchers from the University of Alaska Museum⁴</i>	29
<i>Number of Vouchers from the MVZ collection⁵</i>	97
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations.	
³ The "False Report" status identifies records with obsolete taxonomy/synonymy problems.	

Summary table of bird data for NOAT entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "UAM Collection."

⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "MVZ 11/8/00."

Mammals

Literary references comprised the main source of evidence used for this group. Voucher information available for mammals was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from both the UAM and ANCS+. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. The Abundance and Residency fields were populated whenever there was information available.

Mammal species list reviewer(s): Steve MacDonald, University of Alaska Museum.

Summary table of mammal data for NOAT entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

Number of citations entered or edited in NRBib¹	31
Number of species entered in NPSpecies	44
<i>Number with status as Present</i>	30
<i>Number with status as Probably Present</i>	8
<i>Number with status as Unconfirmed²</i>	4
<i>Number with status as False Report³</i>	2
Number of species with Abundance field populated	3
Number of species with Residency field populated	1
Number of literature references entered in NPSpecies	17
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	431
<i>Number of Vouchers from the University of Alaska Museum⁴</i>	67
<i>Number of Vouchers from the ANCS+ database⁵</i>	364

¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.

² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations.²

³ The "False Report" status identifies records with obsolete taxonomy/synonymy problems.

⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "UAM Collection."

⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source field for "Converted from NOAT ANCS+, Noatnh.zip, by the I&M office."

Amphibians

One amphibian species (*Rana sylvatica*) was entered for the park with a Park Status of Probably Present. The evidence for this species came from a reference, Hodge 1976. This reference and one other were entered into NRBib for amphibians in NOAT. No other forms of evidence were used.

Appendix 14: Sitka National Historical Park (SITK) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the final report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Sitka National Historical Park (SITK), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for SITK follow the same general methodology presented in the final report. A more detailed account of the visit to Sitka park headquarters by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group.

Park unit visit

A valuable segment of searching and compiling data included visiting park headquarters to search files for species evidence and interview available natural resource staff about species occurrence in the Park unit. One AKNHP staff member visited park headquarters at Sitka, Alaska on March 1-3, 2000. Our main contact for the visit was Jennifer Williams, Biologist. Before the visit, Ms. Williams performed a thorough search of all the park's data sources. This included the herbarium, archives, library, bibliography, bird species lists for Sitka, zoology specimens and contacting the park's personnel for additional data sources. She provided us with a herbarium species list, bird species list, and literature pertaining to the park's animal and vascular plant species. She also showed the AKNHP staff member all the data sources--archives, library and herbarium--and introduced him to several park personnel from whom she had requested information. They discussed using ranger observation cards but she, and the park staff, felt that their herbarium and the bird species list--developed by the local chapter of the Audubon Society--were the best sources of species information. He spent most of his time there going through the entire park library and archives to ensure that no literature had been overlooked.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds, and mammals. No evidence for amphibians was found. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for SITK has been prepared for this report; refer to that list for references entered into NPSpecies. The citation list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data, followed by observations and, finally, followed by voucher information. References and observations were entered manually from the original texts while vouchers were entered electronically. Summaries of the data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

Vascular plant data entered to NPSpecies for SITK came from three sources.

- 1.) Verified collection data from the herbarium at the University of Alaska Museum (UAM).
- 2.) Verified and unverified collection data from the Automated National Catalog System (ANCS+).
- 3.) Species information from literature.

(No observations were entered for plants since all taxa mentioned in observation reports were either documented by vouchers or referred to in the literature.)
 The flora of the park is very well known, and most of the Unconfirmed taxa merely need to have vouchers collected or to have existing vouchers verified.

Plant species list reviewer(s): Gregg Streveler, Icy Strait Environmental Services (private consultant); Koren Bosworth (private consultant); and Mary Stensvold, U.S. Forest Service.

Summary table of vascular plant data for SITK entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	14
Number of species entered in NPSpecies²	297
<i>Number with status as Present</i>	64
<i>Number with status as Probably Present</i>	163
<i>Number with status as Unconfirmed</i>	70
Number of literature references entered in NPSpecies	3
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	430
<i>Number of Vouchers from the University of Alaska Museum³</i>	272
<i>Number of Vouchers from the ANCS+ database⁴</i>	158
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7.	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source for "Northern Plant Documentation Center".	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Converted from SITK ANCS+, Sitknh.zip by I&M".	

Fish

Literary references comprised the main source of evidence used for this group. There are seven fish vouchers from the University of Alaska Museum (UAM). No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature.

Fish species list reviewer(s): Bill Wilson, LGL (a private consulting firm); Fred Decicco, Alaska Department of Fish and Game; and Bruce Wing, National Marine Fisheries Service; Gregg Streveler Icy Strait Environmental Services (private consultant)

Summary table of fish data for SITK entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	17
Number of species entered in NPSpecies	11
<i>Number with status as Present</i>	8
<i>Number with status as Probably Present</i>	2
<i>Number with status as Unconfirmed²</i>	1
Number of literature references entered in NPSpecies	9
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	7
<i>Number of Vouchers from the University of Alaska Museum³</i>	7
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² An "Unconfirmed" status for fish indicates that a voucher was the only evidence available for this species and the collection was made outside adjacent drainages to the park or has a vague geographic description.	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source for "University of Alaska Museum, Aquatics, Fairbanks".	

Birds

Literary references comprised the main source of evidence used for this group. Voucher information available for birds was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from the ANCS+, the Museum of Vertebrate Zoology (MVZ) at University of California Berkeley, and the Cornell University Museum (CUM) at Ithaca, New York. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature. The Abundance and Residency fields were populated when enough information was available to do so.

Bird species list reviewer(s): Brad Andres, USFWS Migratory Bird Management; Kevin Winker, UAM; Dan Gibson, UAM; Gregg Streveler Icy Strait Environmental Services (private consultant); Jennifer Williams, National Park Service; Walt Cunningham bird list reviewer (recommended by Jennifer Williams, Biologist, SITK); Marge Ward, bird list reviewer (recommended by Jennifer Williams, Biologist, SITK); Marlys Tedin, bird list reviewer (recommended by Jennifer Williams, Biologist, SITK); Rebecca Joyce, bird list reviewer (recommended by Jennifer Williams, Biologist, SITK); and Jan Straley bird list reviewer (recommended by Jennifer Williams, Biologist, SITK).

Summary table of bird data for SITK entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	

Summary table of bird data for SITK entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	7
Number of species entered in NPSpecies	161
<i>Number with status as Present</i>	<i>144</i>
<i>Number with status as Probably Present</i>	<i>17</i>
Number of species with Abundance field populated	156
Number of species with Residency field populated	144
Number of literature references entered in NPSpecies	5
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	113
<i>Number of Vouchers from the ANCS+ database²</i>	<i>1</i>
<i>Number of Vouchers from the MVZ collection³</i>	<i>2</i>
<i>Number of Vouchers from the CUM collection⁴</i>	<i>110</i>
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source field for "Converted from SITK ANCS+, Sitkn.zip, by the I&M office."	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "MVZ 11/8/00."	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "CUM 11/4/00."	

Mammals

Literary references comprised the main source of evidence used for this group. Voucher information available for mammals was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from both the ANCS+ and the Museum of Vertebrate Zoology (MVZ) at University of California Berkeley. Twenty-two personal observations were entered for mammals. The Abundance field was populated whenever enough information was available to do so. The Residency field was not populated due to lack of sufficient information.

Mammal species list reviewer(s): Steve MacDonald, University of Alaska Museum; Gregg Streveler, Icy Strait Environmental Services (private consultant); Jennifer Williams, National Park Service; and Walt Cunningham, bird list reviewer, (recommended by Jennifer Williams, Biologist, SITK).

Summary table of mammal data for SITK entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	5

Summary table of mammal data for SITK entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

Number of species entered in NPSpecies	24
<i>Number with status as Present</i>	16
<i>Number with status as Probably Present</i>	7
<i>Number with status as False Report²</i>	1
Number of species with Abundance field populated	2
Number of species with Residency field populated	0
Number of literature references entered in NPSpecies	3
Number of observations entered in NPSpecies³	22
Number of vouchers entered in NPSpecies	15
<i>Number of Vouchers from the ANCS+ database⁴</i>	13
<i>Number of Vouchers from the MVZ collection⁵</i>	2

¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.

²The "False Report" status identifies records with obsolete taxonomy/synonymy problems.

³ Sightings are from various people, see the Data Source field of the observations form for observer names.

⁴To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source field for "Converted from SITK ANCS+, Sitknh.zip, by the I&M office."

⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "MVZ 10/4/00."

Appendix 15: Wrangell-St. Elias National Park and Preserve (WRST) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the final report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Wrangell-St. Elias National Park and Preserve (WRST), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for WRST follow the same general methodology presented in the final report. A more detailed account of the visit to Wrangell-St. Elias headquarters by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group.

Park unit visit

A valuable segment of searching and compiling data included visiting park headquarters to search files for species evidence and interview available natural resource staff about species occurrence in the Park unit. Two AKNHP staff members visited park headquarters at Copper Center, Alaska on May 23-25, 2000. Our main contact at the park was Carl Mitchell, Wildlife Biologist. Devi Sharp, Chief of Resources, was also contacted for information during the visit. Prior to visiting the park AKNHP had been in contact with Mary Beth Cook, Botanist for Wrangell-St. Elias. Since she would be away during our visit, she sent plant documentation for this project in advance to AKNHP. Therefore, the emphasis for information collection was on animals. Karin Kozie, former Wildlife Biologist at Wrangell-St. Elias National Park, was contacted via phone and she forwarded copies of the Wrangell-St. Elias Landbird Observations Database and the Wrangell-St. Elias Seabird Observations Database.

The majority of time during the visit was spent searching and copying material from the library, and resource management and wildlife biology files. Special consideration was given to searching for fish information in the fish files. A list of species observed was made from the 1999 Wrangell-St. Elias Alaska Off-Road Point Count Data for bird observations during the breeding season. Also, the Field Notebook of Wildlife Sightings Summer 1983, FirePro, Wrangell-St. Elias National Park was examined for species.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds, mammals, and amphibians. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for WRST has been prepared for this report; refer to that list for references entered into NPSpecies. The citation list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data, followed by observations and, finally, voucher information. References some observations were entered manually from the original texts while most observations and all vouchers were entered electronically. Summaries of the data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

All vascular plant data entered into NPSpecies for WRST came from the voucher and plant species data sent to AKNHP by Mary Beth Cook, the botanist at WRST. This exhaustive dataset is from the WRST plant database and incorporates records from the herbarium of the University of Alaska Museum, various other herbaria and literature.

Plant species list reviewer(s): Mary Beth Cook, National Park Service

Summary table of vascular plant data for WRST entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	54
Number of species entered in NPSpecies²	1308
<i>Number with status as Present</i>	1036
<i>Number with status as Probably Present</i>	251
<i>Number with status as Unconfirmed</i>	18
<i>Number with status as Historic</i>	2
<i>Number with status as False Report</i>	1
Number of literature references entered in NPSpecies	0
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies³	8824
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7.	
³ The original number of vouchers received from WRST was 7,956. Some of these records had multiple collection numbers or multiple herbaria within single voucher records. AKNHP separated these into single records. This added another 868 voucher records to the voucher database.	

Fish

Literary references comprised the main source of evidence used for this group. Voucher information available for fish was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from UAM. There were five observations entered for fish.

Fish species list reviewer(s): Bill Wilson, LGL (a private consulting firm); Fred Decicco, Alaska Department of Fish and Game (ADF&G); and Bruce Wing, National Marine Fisheries Service.

Summary table of fish data for WRST entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	52

Summary table of fish data for WRST entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of species entered in NPSpecies	25
<i>Number with status as Present</i>	16
<i>Number with status as Probably Present</i>	9
Number of literature references entered in NPSpecies	10
Number of observations entered in NPSpecies²	5
Number of vouchers entered in NPSpecies	6
<i>Number of Vouchers from the University of Alaska Museum³</i>	6
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² All fish observations are 1988 sightings at Hanagita Lake reported by Doug Fleming (Fleming 1988).	
³ To find this data set in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source for "University of Alaska Museum, Aquatics, Fairbanks, AK".	

Birds

Literary references comprised the main source of evidence used for this group. Voucher information available for birds was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from the UAM, the ANCS+, the Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley, and Cornell University Museum Collection (CUM) at Ithaca, New York. There are 1,183 personal observations entered for birds. The Abundance and Residency fields were populated when enough information was available to do so.

Bird species list reviewer(s): Brad Andres, USFWS Migratory Bird Management; Kevin Winker, UAM; Dan Gibson, UAM; Carl Mitchell, National Park Service; Karen Kozie, National Park Service; Bill Route, National Park Service; Terry Doyle, U.S. Fish and Wildlife Service

Summary table of bird data for WRST entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	30
Number of species entered in NPSpecies	239
<i>Number with status as Present</i>	213
<i>Number with status as Probably Present</i>	15
<i>Number with status as Unconfirmed²</i>	7
<i>Number with status as False Report³</i>	4
Number of species with Abundance field populated	208
Number of species with Residency field populated	53

Summary table of bird data for WRST entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of literature references entered in NPSpecies	21
Number of observations entered in NPSpecies⁴	2025
Number of vouchers entered in NPSpecies	13
<i>Number of Vouchers from the University of Alaska Museum⁵</i>	<i>2</i>
<i>Number of Vouchers from the ANCS+ database⁶</i>	<i>3</i>
<i>Number of Vouchers from the MVZ collection⁷</i>	<i>5</i>
<i>Number of Vouchers from the CUM collection⁸</i>	<i>3</i>
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations. ²	
³ The "False Report" status identifies records with obsolete taxonomy/synonymy problems.	
⁴ All bird observations are from on of three sources: 1.) 1,109 from the WRST Landbird Observation Database, Kozie No date (a), 2.) 907 from the WRST Seabird Observation Database, Kozie No date (b), and 3.) 9 personal observations from Terry Doyle, Wildlife Biologist, Tetlin NWR, a reviewer of the bird list for WRST. To find these data sets in the NPSpecies observations simultaneously search for "bird" and the Data Source field respectively for 1.) WRST Landbird Observation Database, 2.) WRST Seabird Observation Database, and 3.) Doyle, T. Pers. comm.	
⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "UAM Collection."	
⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source field for "Converted from WRST ANCS+, Wrstnh.zip, by the I&M office."	
⁷ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "MVZ 11/8/00."	
⁸ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "CUM 11/4/00."	

Mammals

Literary references comprised the main source of evidence used for this group. Voucher information available for mammals was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from UAM, ANCS+ and the Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley. Some observations were entered. The Abundance and Residency fields were not populated due to lack of sufficient information. The Abundance field was populated whenever enough information was available to do so. The Residency field was not populated due to lack of sufficient information.

Mammal species list reviewer(s): Steve MacDonald, University of Alaska Museum; Carl Mitchell, National Park Service; Karen Kozié, National Park Service; Bill Route, National Park Service

Summary table of mammal data for WRST entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	43

Summary table of mammal data for WRST entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of species entered in NPSpecies	56
<i>Number with status as Present</i>	39
<i>Number with status as Probably Present</i>	15
<i>Number with status as False Report²</i>	2
Number of species with Abundance field populated	0
Number of species with Residency field populated	0
Number of literature references entered in NPSpecies	34
Number of observations entered in NPSpecies³	20
Number of vouchers entered in NPSpecies	69
<i>Number of Vouchers from the University of Alaska Museum⁴</i>	51
<i>Number of Vouchers from the ANCS+ database⁵</i>	1
<i>Number of Vouchers from the MVZ collection⁶</i>	17
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "False Report" status identifies records with obsolete taxonomy/synonymy problems.	
³ All observations are from the WRST Seabird Observation Database, Kozié No date (a). To find this data set in the NPSpecies observations simultaneously search for "mammal" and the Data Source field "WRST Landbird Observation Database"	
⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "UAM Collection."	
⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source field for "Converted from WRST ANCS+, Wrstnh.zip, by the I&M office."	
⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "MVZ 10/4/00."	

Amphibians

Two amphibian species (*Rana sylvatica* and *Bufo boreas*) were entered for the park. Both have a Park Status of Present. There were six references, used as evidence in NPSpecies and entered in NRBib. Three observations from various observers were entered in NPSpecies as evidence. Also used as evidence was one voucher from the Robert Parker Hodge Herpetological Collection, Auke Bay Laboratory, Juneau, AK.

Appendix 16: Yukon Charley Rivers National Preserve (YUCH) - Summary of Data Entry to NRBib and NPSpecies as of 9/30/2001

This appendix to the final report (Compilation of Existing Species Data in Alaska's National Parks) summarizes the results for Yukon Charley Rivers National Preserve (YUCH), and details special methods used to populate the NRBib and NPSpecies databases for the Park unit.

Methods used to populate NRBib and NPSpecies for YUCH follow the same general methodology presented in the final report. A more detailed account of the visit to Yukon Charley Rivers headquarters by AKNHP personnel follows. Also included is a summary of data entered into NRBib and NPSpecies by taxonomic group.

Park unit visit

A valuable segment of searching and compiling data included visiting park headquarters to search files for species evidence and interview available natural resource staff about species occurrence in the Park unit. One AKNHP staff member visited park headquarters at Fairbanks, Alaska on February 22-25, 2000. Information for Gates of the Arctic National Park and Preserve was collected simultaneously. Our main contact at the park was Shelli Swanson, Wildlife Biologist. Lisa Fox, Biological Science Technician, did much of the file searching, organization, and copying before our staff member arrived. A Procite database of references was provided to look for species-specific references. Patricia Rost, Supervisory Resource Management Specialist, was also contacted during the visit to the park.

Summary of data entry results

The data entry for the Park unit species was divided between plants, fish, birds, mammals, and amphibians. A separate citation list (by taxonomic group) for all references entered or edited by AKNHP for YUCH has been prepared for this report; refer to that list for references entered into NPSpecies. The citation list includes literature references as well as any databases consulted to produce taxonomic species lists. For all taxonomic groups in this Park unit, data entry into NPSpecies began first with entry of reference data, followed by observations and, finally, voucher information. References and observations were entered manually from the original texts while vouchers were entered electronically. Summaries of the data entry completed as of September 30, 2001 are given below by taxonomic group:

Vascular Plants

Vascular plant data entered to NPSpecies for YUCH came from four sources.

- 1.) Verified collection data from the herbarium at the University of Alaska Museum (UAM).
- 2.) Unverified collection data from the Automated National Catalog System (ANCS+).
- 3.) Verified collection data from Hulten 1941-1950.
- 4.) Species information from literature.

(No observations were entered for plants since all taxa mentioned in observation reports were either documented by vouchers or referred to in the literature.)

Plant species list reviewer(s): David Murray, University of Alaska Museum; Alan Batten University of Alaska Museum; and Carolyn Parker, University of Alaska Museum.

Summary table of vascular plant data for YUCH entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

Number of citations entered or edited in NRBib¹	40
Number of species entered in NPSpecies²	927
<i>Number with status as Present</i>	351
<i>Number with status as Probably Present</i>	223
<i>Number with status as Unconfirmed</i>	353
Number of literature references entered in NPSpecies	9
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	2340
<i>Number of Vouchers from the University of Alaska Museum³</i>	1067
<i>Number of Vouchers from the ANCS+ database⁴</i>	1139
<i>Number of Vouchers from Hulten 1941-1950⁵</i>	134

¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.

² These numbers include synonyms, which may inflate the total numbers; see discussion in main report, task 7.

³ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source for "Northern Plant Documentation Center".

⁴ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Converted from YUCH ANCS+, Yuchnh.zip by I&M".

⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "vascular plant" and the Data Source field for "Hulten, Eric. 1941-1950. Flora of Alaska and Yukon. Lunds University, Stockholm, Sweden. 10vols."

Fish

Literary references comprised the main source of evidence used for this group. Voucher information available for fish was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from UAM. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature.

Fish species list reviewer(s): Bill Wilson, LGL (a private consulting firm); Fred Decicco, Alaska Department of Fish and Game; and Bruce Wing, National Marine Fisheries Service.

Summary table of fish data for YUCH entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

Summary table of fish data for YUCH entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	24
Number of species entered in NPSpecies	18
<i>Number with status as Present</i>	16
<i>Number with status as Probably Present</i>	2
Number of literature references entered in NPSpecies	9
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	84
<i>Number of Vouchers from the University of Alaska Museum²</i>	84
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² To find this data set in NPSpecies, simultaneously search the vouchers for "fish" and the Data Source for "University of Alaska Museum, Aquatics, Fairbanks."	

Birds

Literary references comprised the main source of evidence used for this group. Voucher information available for birds was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from both UAM and the Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley. There were 108 observations entered for this Park unit. The Abundance and Residency fields were populated whenever enough information was available.

Bird species list reviewer(s): Brad Andres, USFWS Migratory Bird Management; Kevin Winker, UAM; and Dan Gibson, UAM.

Summary table of bird data for YUCH entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	75
Number of species entered in NPSpecies	173
<i>Number with status as Present</i>	148
<i>Number with status as Probably Present</i>	19
<i>Number with status as Unconfirmed²</i>	4
<i>Number with status as False Report³</i>	2
Number of species with Abundance field populated	150
Number of species with Residency field populated	92
Number of literature references entered in NPSpecies	68
Number of observations entered in NPSpecies⁴	108

Summary table of bird data for YUCH entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of vouchers entered in NPSpecies	26
<i>Number of Vouchers from the University of Alaska Museum⁵</i>	19
<i>Number of Vouchers from the MVZ collection⁶</i>	7
¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.	
² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations.	
³ The "False Report" status identifies records with obsolete taxonomy/synonymy problems.	
⁴ All bird observations from Ralph Moldenhauer, former professor, Texas Bird Sound Library, Sam Houston State University, Division of Life Sciences, Geology and Geography Huntsville, TX. (Texas Sound Library 2000).	
⁵ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "UAM Collection."	
⁶ To find this data set in NPSpecies, simultaneously search the vouchers for "bird" and the Data Source for "MVZ 11/8/00."	

Mammals

Literary references comprised the main source of evidence used for this group. Voucher information available for mammals was sparse and concentrated on the more commonly recognized or abundant species. Voucher information came from both UAM and the Museum of Vertebrate Zoology (MVZ) at the University of California Berkeley. No observations were entered as the taxa mentioned in any available observation reports were already documented in the literature.

Mammal species list reviewer(s): Steve MacDonald, University of Alaska Museum.

Summary table of mammal data for YUCH entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.	
Number of citations entered or edited in NRBib¹	21
Number of species entered in NPSpecies	40
<i>Number with status as Present</i>	31
<i>Number with status as Probably Present</i>	8
<i>Number with status as Unconfirmed²</i>	1
Number of species with Abundance field populated	14
Number of species with Residency field populated	0
Number of literature references entered in NPSpecies	12
Number of observations entered in NPSpecies	0
Number of vouchers entered in NPSpecies	114
<i>Number of Vouchers from the University of Alaska Museum³</i>	70
<i>Number of Vouchers from the MVZ collection⁴</i>	44

Summary table of mammal data for YUCH entered into NRBib and NPSpecies by AKNHP as of September 30, 2001.

¹ This value indicates the number of citations entered into NRBib for literature, voucher collections, and databases examined by AKNHP in the process of completing this project.

² The "Unconfirmed" status indicates species documented at the genus level only or species of which the only documentation available was from unverified literature, collections, or observations.

³ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "UAM Collection."

³ To find this data set in NPSpecies, simultaneously search the vouchers for "mammal" and the Data Source for "MVZ 10/4/00."

Amphibians

Two amphibian species (*Rana sylvatica* and *Bufo boreas*) were entered for the Park unit. Both were given a Park Status of Probably Present. The evidence for these species came from two references, which were also entered in NRBib. No other forms of evidence were used.

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