

**SACRAMENTO MUNICIPAL UTILITY DISTRICT
UPPER AMERICAN RIVER PROJECT
(FERC NO. 2101)**

**WATERFOWL NESTING HABITAT
TECHNICAL REPORT**

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LIST OF APPLICABLE STUDY PLANS

Description

- Waterfowl Nesting Habitat Study Plan

6.12 Waterfowl Nesting Habitat Study Plan

6.12.1 Pertinent Issue Questions

The waterfowl nesting habitat study addresses Terrestrial Resource Issue Questions:

- 7(b). "What are the relevant and known factors (limiting and beneficial) affecting special status bird populations in the Project area and how/where are these factors influenced by Project operation and maintenance?"
- 16. "Are drawdown zones on high elevation reservoirs managed correctly to retain and support wetland/riparian plants (i.e., can the upper reservoir riparian zones look more like Secret Lake and less like Aloha Lake?"
- 21. "What are the Project impacts on special status birds with particular emphasis on Project facilities, operation, maintenance and Project-influenced recreation?"
- 28. "What are the Project-related effects on existing wetlands?", and 33 ("To what extent do Project operation and maintenance activities and Project-induced recreation affect waterfowl populations?"

6.12.2 Background

Over 30 species of waterfowl (i.e., collectively loons, grebes, swans, geese, ducks, coots, etc.) are either known to occur or have the potential to occur in the vicinity of the UARP (SMUD 2001). The majority of these species utilize Project reservoirs primarily during spring and fall migration and do not breed in the area (McCaskie et al. 1979, Zeiner et al. 2001). Only four species of waterfowl are believed to nest regularly on or adjacent to Project reservoirs. These are pied-billed grebe, Canada goose, mallard and common merganser. With the exception of the pied-billed grebe, all are legally hunted species in California. Waterfowl are also a designated "watchable wildlife" species and a key prey of bald eagles, especially during winter. The basic nesting habitat requirements of the five species of waterfowl that are most likely to nest within the UARP area are as follows:

Species	Nesting Habitat Requirements
Pied-billed grebe	Over water in emergent vegetation. Mainly lower elevation sites.
Canada goose	Highly variable. Usually on firm, dry, slightly elevated site near water. Often on islands, bulrush mats, platforms, baskets. Nearby dry, loafing site for male is essential.
Mallard	Highly variable. Usually on dry sites in tall, dense herbaceous vegetation or low shrubs. Occasionally over water or in willow clumps, stumps, bridges, dense woods. Readily uses artificial islands and nest platforms.
Common merganser	Cavities or dark recesses in trees, snags, stumps, and nest boxes near water. Occasionally among roots, beneath rocks, and in caves.

Waterfowl nesting on reservoirs can be adversely effected by fluctuating water levels and Project-related recreation during nest building, incubation, and brood-rearing. Rising water levels can flood nests after established, while falling water levels can make nests accessible to predation and other disturbances. Reservoir management practices can also affect the distribution and quality of foraging habitat for waterfowl around reservoir margins. Loss of waterfowl production and reservoir utilization can have an adverse effect on bald eagle food supply and can diminish the "watchable wildlife" values of the UARP. Note that Project operations and recreation activities are not likely to have a significant affect on tree cavities that make up the primary nesting substrate of the common merganser. Therefore, this study will focus on the three remaining species.

6.12.3 Study Objectives

The waterfowl nesting habitat study has four primary objectives: 1) determine the distribution and assess the quality of nesting habitat available for pied-billed grebe, Canada goose, and mallard, at Union Valley and Gerle Creek Reservoirs (i.e., focus the evaluation on islands and emergent wetlands around reservoir margins); 2) estimate current utilization of these habitats by these species and evaluate factors that may limit their nesting success; 3)

determine the distribution and quality of foraging/grazing habitat (i.e., shallow water wetlands and upland grazing areas) at Union Valley and Gerle Creek Reservoirs; 4) evaluate how project operations (e.g., reservoir fluctuations) and recreation affect nesting and foraging habitat availability and utilization by the target species; and 5) to support the Bald Eagle Study, estimate the distribution and abundance of waterfowl utilizing UARP reservoirs during the eagle brood-rearing (April-June) and critical winter months (December-January).

6.12.4 Study Area and Sampling Sites

The waterfowl nesting habitat study area will focus primarily on habitats at Union Valley and Gerle Creek Reservoirs as a "best-case" situation. Union Valley Reservoir has substantially more shallow water wetlands and nesting opportunities for waterfowl than the other UARP reservoirs. In addition, Union Valley has the greatest amount of annual fluctuation in water levels of the Project reservoirs, and therefore, the greatest potential for impacts to nesting waterfowl. Gerle Creek Reservoir provides shallow and deep-water habitat for Canada goose and experiences daily fluctuations that may effect nesting suitability. To support Study Objective No. 5, visual estimates of waterfowl abundance (i.e., as potential prey for bald eagles) will be conducted at all Project Reservoirs during the brood-rearing and wintering seasons. Field studies will be restricted to those lands where the Licensee has legal access (e.g., ownership/easement rights, public lands) and will not occur on private lands without prior permission from the landowner.

6.12.5 Information Needed From Other Studies

Determination of waterfowl habitat distribution and potential sources of disturbance will use information derived from the Vegetation Mapping Study, Riparian Vegetation Study, Wetland Study, Hydrology Study, Land Management Study, and possibly the Reservoir Habitat Mapping Study. The various recreation studies will provide information on the extent, intensity, and duration of recreational use. Important information will also be derived from past and current monitoring efforts conducted by the Eldorado National Forest (ENF) staff biologists and from a review of the scientific literature.

6.12.6 Study Methods and Schedule

The waterfowl nesting habitat study is intended to evaluate the effects of project operation and recreation on nesting/foraging habitat availability and habitat utilization at Union Valley and Gerle Creek reservoirs for the following species: pied-billed grebe, Canada goose, and mallard.

Pre-Field Investigations

The following data will be gathered in spring/summer 2002 from existing sources of information and/or from other UARP resource studies, as this information becomes available:

- Findings of all available studies on responses of nesting waterfowl to hydro operation, recreation, and other sources of disturbance of relevance to the UARP [Source: literature review and consultation with experts].
- Distribution of significant nesting habitat (i.e., emergent wetlands and islands) at Union Valley Reservoir and Gerle Creek Reservoir for the three target species that may be affected by Project operation and recreation [Source: Vegetation Mapping Study, Riparian Study, Wetlands Study, ENF data, and ground-truthing as described below].
- Distribution of significant foraging habitat (i.e., shallow water wetlands, upland grazing areas) for the target species within or immediately adjacent to Union Valley Reservoir and Gerle Creek Reservoir [Source: Vegetation Mapping Study, Riparian Study, Wetlands Study, ENF data, and ground-truthing as described below].
- Location, type, intensity, and season/frequency of occurrence of recreational use within 0.25-mile of suitable waterfowl nesting/foraging habitat at Union Valley Reservoir and Gerle Creek Reservoir [Source: ENF/SMUD records and findings of Recreation studies].
- Location, timing, extent, frequency, and duration of reservoir fluctuations at Union Valley Reservoir and Gerle Creek Reservoir [Source: SMUD records].

Field Investigations

Determination of the relationship between Project-related factors and nesting habitat utilization and success at Union Valley Reservoir and Gerle Creek Reservoir will involve the following field studies.

- Ground-truthing and characterization of significant nesting and foraging habitats on or adjacent to Union Valley and Gerle Creek reservoirs throughout the range of reservoir levels in effect during the 2002 waterfowl nesting season. Each site will be visited once each month between April and July (total of four visits) with each visit spaced at least 3-4 weeks apart. For each visit to each site, photographs will be taken and a qualitative assessment made of nesting/foraging habitat quality.
- For each potential significant nesting habitat site, inspections will be made for evidence of waterfowl nesting (e.g., direct observation of birds, nests, eggs, young). Inspections will occur on foot, by boat, and/or remotely using binoculars and spotting scopes. Data to be recorded will include: date/time of survey, species, type of nest, number of eggs or young, nesting stage, distance to water/shoreline, nesting substrate, distance to potential sources of disturbance, and other anecdotal observations deemed relevant by the biologist conducting the survey. A field survey form will be developed in collaboration with ENF biologists prior to conducting the survey.
- Each potentially significant foraging habitat site (shallow water wetlands, upland grazing habitat) will be surveyed for evidence of waterfowl foraging activity (direct observation of birds, feathers, feces, etc.). Data to be recorded will include: date/time of survey, species observed, habitat characteristics, distance to water/shoreline, distance to potential sources of disturbance, and other anecdotal observations deemed relevant by the biologist conducting the survey. A field survey form will be developed in collaboration with ENF biologists prior to conducting the survey.
- To support the Bald Eagle Study, a visual estimate will be made of the distribution, abundance, and availability of waterfowl on all UARP reservoirs during the eagle brood-rearing period (April-June) and critical winter period (December-February). One visual inspection of each Project reservoir will be conducted twice during each of these months in 2002 to record the species, numbers, and distribution of all waterfowl present. Inspections will depend on accessibility by car and foot during winter months. Observations will be made using binoculars and/or a spotting scope.

6.12.7 Analysis

Waterfowl nesting and foraging habitat will be evaluated with respect to the effects of Project-operations and recreational activity. The analysis will include a thorough review of the literature and consultation with experts, as appropriate, to compare reservoir operations and recreational activities with those of similar reservoir systems that support nesting waterfowl. The analysis will also consider the potential, feasibility, and need for modifications in reservoir and recreation management that may enhance nesting potential for waterfowl.

6.12.8 Study Output

Study results will be presented to the Terrestrial Resources Technical Working Group (TWG) and Plenary Group toward the end of 2002. However, the ultimate study output will be a written report that includes the issues addressed, objectives, study area, methods, analysis, results, discussion, and conclusions. The reports will be prepared in a format that allows the information to be inserted directly into the Licensee-prepared Draft Environmental Assessment that will be submitted to FERC with the Licensee's application for a new license.

6.12.9 Preliminary Estimated Study Cost

A preliminary estimated study cost will be prepared after the Plenary Group approves the plan.

6.12.10 TWG and Plenary Group Endorsement

On April 16, 2002, the following TWG participants gave approval to the plan: USFS, BLM and SMUD.

On May 1, 2002 the following participants gave Plenary Group approval to the plan: USFS, BLM, USFWS, Taxpayers of El Dorado County, Friends of El Dorado County, Camp Lotus, El Dorado County Water Agency, El Dorado County, Placer County Water Agency, California Department of Fish and Game, California State Water Resources Control Board, Pacific Gas and Electric and Friends of the River. None of the participants at the meeting said they could not “live with” this study plan.

6.12.11 Literature Cited

McCaskie, G., P. De Benedictis, R. Erickson, J. Morlan. 1979. Birds of Northern California: an annotated field list. Second Edition. Golden Gate Audobon Society, Berkeley. 84 pp.

SMUD (Sacramento Municipal Utility District). 2001. Initial Information Package for Relicensing of the Upper American River Project (FERC Project No. 2101). Sacramento. July 2001.

Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White (compiling editors). Updates 1988-1990. California's Wildlife. Volume II: Birds. California Statewide Wildlife Habitat Relationships System. California Department of Fish and Game. Sacramento. <http://www.dfg.ca.gov/whdab/cwhr/lifehistbirds.html>.

WATERFOWL NESTING HABITAT TECHNICAL REPORT

SUMMARY

This technical report describes waterfowl observations and habitat assessments conducted during 2002 and 2003 at Upper American River Project reservoirs with an emphasis on Union Valley and Gerle Creek reservoirs. Related information on waterfowl habitats is available in the *Technical Report on Riparian Vegetation and Wetlands*. For purposes of this study, “waterfowl” refers to water-dependent species within the following avian Families: *Anatidae* (Ducks, Geese, and Swans), *Gaviidae* (Loons), *Pelicanidae* (Pelicans), and *Podicipedidae* (Grebes).

Seventeen species of waterfowl were recorded among nine locations. The greatest diversity was recorded at Union Valley Reservoir with 14 species, followed by Gerle Creek and Ice House reservoirs with six species each. Common merganser (*Mergus merganser*) was the species recorded on the most visits while Canada goose (*Branta canadensis*) was recorded in greater numbers than any other species. Three species were documented to breed in the study area: Canada goose, mallard (*Anas platyrhynchos*), and common merganser. Nesting habitat, nest attempts, and nesting success within the study area are influenced by a variety of factors operating independently or synergistically. These factors include: breeding range, reservoir fluctuation, availability of suitable nesting cover, predation, and recreation. Waterfowl occurrence and habitat utilization appear consistent with that reported in published literature and in predictive models such as the California Wildlife Habitat Relationships System administered by the California Department of Fish and Game.

1.0 INTRODUCTION

This technical report is one in a series of reports prepared by Devine Tarbell & Associates, Inc., (DTA) for the Sacramento Municipal Utility District (SMUD) as an appendix to SMUD’s application to the Federal Energy Regulatory Commission (FERC) for a new license for the Upper American River Project (UARP or Project). The report addresses waterfowl and their nesting habitat within the UARP area and includes the following sections:

- **BACKGROUND** – Summarizes the applicable study plan approved by the UARP Relicensing Plenary Group; a brief description of the issue questions addressed, in part, by the study plan; the objectives of the study plan; the study area, and agency information requests. In addition, requests by resource agencies for additions to this technical report are described in this section.
- **METHODS** – A description of the methods used in the study, including a listing of study sites.
- **RESULTS** – A description of the most important data. Copious raw data, photographs, and drawings, are provided by request in a separate compact disc (CD) for additional analysis and review by interested parties.
- **ANALYSIS** – An analysis of the results, where appropriate.
- **LITERATURE CITED** – A listing of all literature cited in the report.

This technical report does not include a detailed description of the UARP Alternative Licensing Process (ALP) or the UARP, which can be found in the following sections of SMUD’s

application for a new license: The UARP Relicensing Process, Exhibit A (Project Description), Exhibit B (Project Operations), and Exhibit C (Construction).

Also, this technical report does not include a discussion regarding the affects of the UARP on waterfowl and related environmental resources, nor does the report include a discussion of appropriate protection, mitigation and enhancement measures. An impacts discussion regarding the UARP is included in the applicant-prepared preliminary draft environmental assessment (PDEA) document, which is part of SMUD's application for a new license. Development of resource measures will occur in settlement discussions, which will commence in 2004, and will be reported on in the PDEA.

2.0 BACKGROUND

2.1 Waterfowl Nesting Habitat Study Plan

All native North American species of waterfowl are protected from take (i.e., to hunt, capture, kill, harass, or possess) under the federal Migratory Bird Act of 1918, as amended (16 U.S.C. 703-712). In response to these protections and the management emphasis for waterfowl stated in the Eldorado National Forest (ENF) Land and Resource Management Plan (LRMP; USDA 1989) and the California Fish and Game Code, the UARP Terrestrial Resources Technical Working Group (TWG) developed the UARP Waterfowl Nesting Habitat Study Plan, which was approved by the TWG on April 16, 2002. On May 1, 2002 the UARP Relicensing Plenary Group approved the Waterfowl Nesting Habitat Study Plan. The study plan was designed to address, in part, the following issues questions developed by the Plenary Group:

- | | |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Issue Question 7(b). | What are the relevant and known factors (limiting and beneficial) affecting special status bird populations in the Project area and how/where are those factors influenced by Project operation and maintenance? |
| Issue Question 16. | Are draw down zones on high elevation reservoirs managed correctly to retain and support wetland/riparian plants (i.e., can the upper reservoir riparian zones look more like Secrete Lake and less like Aloha Lake)? |
| Issue Question 21. | What are the Project impacts on special status birds with particular emphasis on Project facilities, operation, maintenance and Project-influenced recreation? |
| Issue Question 28. | What are the Project-related effects on existing wetlands? |
| Issue Question 33. | To what extent do Project operations and maintenance activities and Project-induced recreation affect waterfowl populations? |

Based on a review and discussion of the initial issue questions, the TWG developed the following study objectives:

- Determine the distribution and assess the quality of nesting habitat available for pied-billed grebe, Canada goose, and mallard at Union Valley and Gerle Creek Reservoirs (i.e., focus the evaluation on islands and emergent wetlands around reservoir margins);
- Estimate current utilization of these habitats by these species and evaluate factors that may limit their nesting success;
- Determine the distribution and quality of foraging/grazing habitat (i.e., shallow water wetlands and upland grazing areas) at Union Valley and Gerle Creek Reservoirs;
- Evaluate how UARP operations (e.g., reservoir fluctuations and recreation) affect nesting and foraging habitat availability and utilization by the target species; and
- To support the Bald Eagle Study, estimate the distribution and abundance of waterfowl utilizing UARP reservoirs during the eagle brood-rearing (April-June) and critical winter months (December-January).

The waterfowl nesting habitat study area focused primarily on habitats at Union Valley and Gerle Creek reservoirs. Union Valley Reservoir provides substantially more shallow water wetlands and nesting opportunities for waterfowl than the other UARP reservoirs. In addition, Union Valley Reservoir has the greatest amount of annual fluctuation in water levels of the UARP reservoirs, and therefore, the greatest potential for impacts to nesting waterfowl. Gerle Creek Reservoir provides shallow and deep-water habitat for Canada goose and experiences daily fluctuations that may affect nesting suitability. To support the fifth objective, visual estimates of waterfowl abundance (i.e., as potential prey for bald eagles) were conducted at all UARP reservoirs within the Crystal Basin at periodic times during the brood-rearing and wintering seasons. Field studies were restricted to those lands where SMUD has legal access (e.g., ownership/easement rights, public lands) and did not occur on private lands without prior permission from the landowner. For purposes of this study, “waterfowl” refers to water-dependent species within the following avian Families: *Anatidae* (Ducks, Geese, and Swans), *Gaviidae* (Loons), *Pelicanidae* (Pelicans), and *Podicipedidae* (Grebes). Other water-associated birds such as members of the *Ardeidae* (Bitterns and Herons), *Phalacrocoracidae* (Cormorants), *Charadriidae* (plovers), *Rallidae* (Rails, Coots, Gallinules, and Moorhens), and *Scolopacidae* (Shorebirds) were not addressed by this study but, where observed, were recorded as Incidental Observations and reported in Appendix D.

2.2 Water Year Type

The information in this subsection is provided for informational purposes, as requested by agencies. The derivation of water types is described in the *Water Quality Technical Report*. Note that the types in Table 2.2-1 below are those that would result from the application of the water types proposed by the UARP Relicensing Water Year Type Subgroup to the period of record, and not those water year types that actually were applied in conformance with the existing UARP or Chili Bar licenses. Table 2.2-1 presents water year types for the period that is pertinent to this *Technical Report on Waterfowl Nesting Habitat*.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2002	D	BN										
2003	BN	BN	BN	D	BN	BN	BN	BN	BN	---	---	---

2.3 Agency Requested Information

In a letter dated December 17, 2003 to SMUD, the agencies identified, by study, information they believed they needed to begin settlement discussions, with the understanding that additional information might be requested. While the Waterfowl Nesting Habitat Study was not specifically addressed, the agencies following general comment regarding terrestrial studies is pertinent:

- All studies will need GIS shape files showing habitat/vegetation types and spatial relationships with meta-data.
- Shape files will need to include survey locations and positive sightings/responses, nesting/foraging areas.

The distribution of waterfowl habitat at Union Valley Reservoir is provided in a GIS map in Appendix A. Detailed records of waterfowl observations in the study area are provided in Appendix B.

In a May 13, 2004 letter, the agencies stated in regards to the *Waterfowl Nesting Habitat Technical Report* (February 2004) the following:

- Incidental observations will continue to be recorded during the course of bald eagle monitoring in 2004. We have no additional comments on the report.

Incidental observations of waterfowl were recorded during bald eagle monitoring through July 2004 to the extent that such observations provided information on bald eagle foraging behavior and prey selection. This information will be included in the Bald Eagle Technical Report to be issued in August 2004. Data recorded during the 2002-2003 waterfowl study and included in this *Waterfowl Nesting Habitat Technical Report* is extensive and greatly enhances knowledge of waterfowl occurrence and habitat utilization in the UARP area. In addition, the Terrestrial Resources TWG met on June 21, 2004 to consider “conclusions” relative to mesocarnivores and to develop recommendations for consideration by the Settlement Negotiations Group. The TWG agreed on the following general conclusions:

1. The Issue Questions and Objectives stated in the Waterfowl Nesting Habitat Study Plan are adequately addressed by the information provided in the Waterfowl Nesting Habitat Technical Report.
2. Methods employed were adequate to address Issue Questions and Objectives.

The TWG also developed the following recommendations for consideration by the Settlement Negotiations Group:

As part of a management plan for waterfowl SMUD should consider the following:

1. There are opportunities to enhance habitat for nesting waterfowl. If other interest groups had a desire to enhance waterfowl habitat, SMUD could participate in the effort to some degree. One potential enhancement measure would be to place brush piles in reservoir margins for protective cover.
2. SMUD supports the concept of the ongoing Engineering, Education and Enforcement (“Triple Es”) programs administered by the Forest Service. There may be an opportunity to contribute to this program for the protection/enhancement of waterfowl and their habitat. Monitoring and enforcement actions must be in place to ensure compliance with applicable management plans.

3.0 METHODS

SMUD performed the Waterfowl Nesting Habitat Study in conformance to the methods described in the study plan.

3.1 Non-Field Investigations

To facilitate development and refinement of field investigations, the following information was gleaned from SMUD’s records, existing scientific literature, related technical reports and regulatory documents, other UARP relicensing studies, web-based computer searches, and consultation with agency personnel that have knowledge of the UARP and waterfowl resources:

- Findings of available studies on responses of nesting waterfowl to hydro operation, recreation, and other sources of disturbance of relevance to the UARP.
- Distribution of significant nesting habitat (i.e., emergent wetlands and islands) at Union Valley Reservoir and Gerle Creek Reservoir for the three target species that may be affected by UARP operation and recreation.
- Distribution of significant foraging habitat (e.g., shallow water wetlands, upland grazing areas) for the target species within or immediately adjacent to Union Valley Reservoir and Gerle Creek Reservoir.
- Location, type, intensity, and season/frequency of occurrence of recreational use within 0.25-mile of suitable waterfowl nesting/foraging habitat at Union Valley Reservoir and Gerle Creek Reservoir.
- Location, timing, extent, frequency, and duration of reservoir fluctuations at Union Valley Reservoir and Gerle Creek Reservoir.

3.2 Field Investigations

Qualified biologists performed the field investigations described below during this study.

3.2.1 Characterization and Monitoring of Nesting and Foraging Habitats

Nesting and foraging habitats at Union Valley Reservoir known to be used extensively by waterfowl were characterized and monitored throughout the range of reservoir levels in effect during the 2002 and 2003 waterfowl nesting season. Sites were visited at least once each month between April and July with each visit spaced at least 3-4 weeks apart. Fixed stations were established at various sites (Figure 3.2-1, Appendix A) to obtain a photographic record of changing habitat conditions relative to fluctuations in reservoir levels. In addition, waterfowl habitat conditions were evaluated qualitatively at other UARP reservoirs including Gerle Creek, Loon Lake, Ice House, Junction, Camino, and Slab Creek reservoirs. Factors used in this qualitative assessment included: size, depth, and shape of reservoir/pond; availability and structure of suitable nesting cover/substrate; availability of forage; and proximity of disturbances. Habitat quality and waterfowl utilization were also assessed qualitatively at several small ponds located near Loon Lake and Gerle Creek reservoirs that were frequented by waterfowl. Results derived from the UARP Vegetation Mapping and Wetland studies were used heavily in determining overall habitat conditions for waterfowl in the study area.

3.2.2 Inspection of Potential Nesting Habitats

Potential nesting habitats, based on waterfowl activity and overall site conditions, were inspected for evidence of waterfowl nesting (e.g., direct observation of birds, nests, eggs, young). Inspections occurred on foot, by boat, and/or remotely using binoculars and spotting scopes. Data recorded included: date/time of survey, species observed, type of nest if found, number of eggs or young if found, nesting stage, distance of nest to water/shoreline, nesting substrate, distance to potential sources of disturbance, and other anecdotal observations deemed relevant by the biologist conducting the survey.

3.2.3 Assessment of Potential Foraging Habitats

Each potentially significant foraging habitat sites (shallow water wetlands, upland grazing habitat) were surveyed for evidence of waterfowl foraging activity (e.g., direct observation of birds, feathers, feces, etc.). Data recorded included: date/time of survey, species observed, habitat characteristics, distance of foraging area to water/shoreline, distance to potential sources of disturbance, and other anecdotal observations deemed relevant by the biologist conducting the survey.

3.2.4 Visual Estimates of Waterfowl Distribution and Abundance

To support the Bald Eagle/Osprey Study, visual estimates were made of the distribution, abundance, and availability of waterfowl on UARP reservoirs on an irregular basis from May 2002 through November 2003. These visits included the bald eagle brood-rearing period (April-

June) and critical winter period (December-February). Data recorded included: species observed, numbers of each species, sex/age where discernible, and habitat utilization patterns (e.g., location), and activity (e.g., breeding, resting, foraging). Inspections were made on foot, by car, and by boat using binoculars and/or a spotting scope.

3.2.5 Incidental Observations

Biologists engaged in these field surveys also recorded incidental observations of wildlife for purposes of generating a comprehensive species list for the UARP area. Data recorded for each observation generally included: species, date of observation, location, and any remarkable behavior or activity exhibited by the animals observed.

4.0 RESULTS

4.1 General Waterfowl Occurrence in Study Area

Biologists recorded 17 species of waterfowl among nine locations (reservoirs and ponds) within the study area from May 2002 through November 2003 (Table 4.1-1). The greatest diversity was recorded at Union Valley Reservoir with 14 species, followed by Ice House Reservoir and Gerle Creek Reservoir with six species each. Detailed observation data recorded during 2002 and 2003 field surveys are provided in Appendix B.

Species	Union Valley	Loon Lake	Ice House	Gerle Creek	Gerle Canal	Junction	Rubicon – Buck Island	Bufflehead Pond ¹	Wood Duck Pond ²
Common Loon (<i>Gavia immer</i>)	X	X	X						
Pied-Billed Grebe (<i>Podilymbus podiceps</i>)	X								
Eared Grebe (<i>Podiceps nigricollis</i>)	X	X							
Western Grebe (<i>Aechmophorus occidentalis</i>)	X								
American White Pelican (<i>Pelecanus erythrorhynchos</i>)	X								
Tundra Swan (<i>Cygnus columbianus</i>)	X								
Canada Goose (<i>Branta Canadensis</i>)	X	X	X	X	X				
Mallard (<i>Anas platyrhynchos</i>)	X	X	X				X	X	X
Blue-Winged Teal (<i>Anas discors</i>)	X								
Cinnamon Teal (<i>Anas cyanoptera</i>)	X								
Wood Duck (<i>Aix sponsa</i>)						X			X
Ring-Necked Duck (<i>Aythya collaris</i>)				X					
Bufflehead (<i>Bucephala albeola</i>)	X	X	X	X				X	X
Common Merganser (<i>Mergus merganser</i>)	X	X	X	X	X		X		
Common Goldeneye (<i>Bucephala clangula</i>)	X		X	X					
Lesser Scaup (<i>Aythya affinis</i>)	X								
Ruddy Duck (<i>Oxyura jamaicensis</i>)				X					

¹ Bufflehead Pond is a small seasonal non-Project pond located at the intersection of Ice House Road and the turn-off to Loon Lake Boat Ramp. Biologists conducting the study named the pond after the first species detected at the site.

² Wood Duck Pond is a small seasonal non-Project pond located on the south side of the gated access road to Gerle Creek Dam. Biologists conducting the study named the pond after the first species detected at the site.

4.2 Waterfowl Occurrence at Union Valley Reservoir

Fourteen species of waterfowl were recorded at Union Valley Reservoir during 31 observational visits from May 2002 to November 2003 (Table 4.2-1). Common merganser (*Mergus merganser*) was recorded most frequently (20 visits), followed by Canada goose (*Branta canadensis*) (15 visits), bufflehead (*Bucephala albeola*) (14 visits), and mallard (*Anas platyrhynchos*) (12 visits). No other species was detected during more than six visits. Breeding was confirmed (by observations of young) for only three species: Canada goose, mallard, and common merganser although brood survival was extremely low (Table 4.2-2). No active or inactive nests were detected. Species by species results follow.

Table 4.2-1. Waterfowl surveys and detections at Union Valley Reservoir by month, 2002-2003.																	
Month Year	No. Visits	Measure	Common Loon	Pied-Billed Grebe	Eared Grebe	Western Grebe	Am. White Pelican	Tundra Swan	Canada Goose	Mallard	Blue-Winged Teal	Cinnamon Teal	Bufflehead	Common Merganser	Common Goldeneye	Lesser Scaup	
May 2002	1	# Birds	0	0	0	0	0	0	60	0	0	0	0	0	0	0	
		Ave. #/Visit	0	0	0	0	0	0	0	60	0	0	0	0	0	0	0
		Range	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
June 2002	3	# Birds	0	0	0	0	0	0	495	32	2	0	0	19	0	0	
		Ave. #/Visit	0	0	0	0	0	0	0	165	10.7	0.7	0	0	6.3	0	0
		Range	NA	NA	NA	NA	NA	NA	NA	65-320	3-29	0-2	NA	NA	0-10	NA	NA
July 2002	1	# Birds	0	0	0	0	0	0	65	0	0	0	0	0	0	0	
		Ave. #/Visit	0	0	0	0	0	0	0	65	0	0	0	0	0	0	0
		Range	NA	NA	NA	NA	NA	NA	NA	N/A	NA	NA	NA	NA	NA	NA	NA
Sep 2002	3	# Birds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Ave. #/Visit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Range	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oct 2002	2	# Birds	0	0	0	0	0	0	0	1	0	0	0	4	0	0	
		Ave. #/Visit	0	0	0	0	0	0	0	0	0.5	0	0	0	2	0	0
		Range	NA	NA	NA	NA	NA	NA	NA	NA	0-1	NA	NA	NA	0-4	NA	NA
Dec 2002	1	# Birds	1	0	0	0	0	0	0	0	0	0	0	1	0	0	
		Ave. #/Visit	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		Range	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jan 2003	2	# Birds	0	0	1	0	0	4	0	2	0	0	12	8	0	0	
		Ave. #/Visit	0	0	0.5	0	0	2	0	1	0	0	6	4	0	0	
		Range	NA	NA	0-1	NA	NA	0-4	NA	0-2	NA	NA	5-7	3-5	NA	NA	
Feb 2003	4	# Birds	0	0	2	0	0	8	6	0	0	0	14	10	0	0	
		Ave. #/Visit	0	0	0.5	0	0	2	1.5	0	0	0	3.5	2.5	0	0	
		Range	NA	NA	0-1	NA	NA	0-5	0-6	NA	NA	NA	3-6	1-6	NA	NA	
Mar 2003	4	# Birds	0	2	2	2	0	0	12	15	0	3	12	8	1	0	
		Ave. #/Visit	0	0.5	0.5	0.5	0	0	3	3.75	0	0.8	3	2	0.3	0	
		Range	NA	0-2	0-2	0-2	NA	NA	0-5	0-13	NA	0-3	2-5	0-5	0-1	NA	
Apr 2003	2	# Birds	4	2	3	0	6	0	26	37	0	0	14	9	0	1	
		Ave. #/Visit	2	1	1.5	0	3	0	13	18.5	0	0	7	4.5	0	0.5	
		Range	1-3	0-2	0-3	NA	0-6	NA	4-22	1-36	NA	NA	1-13	1-8	NA	0-1	
May 2003	3	# Birds	2	0	0	0	8	0	62	23	2	0	6	5	0	0	
		Ave. #/Visit	0.7	0	0	0	2.7	0	20.7	7.7	0.7	0	2	1.7	0	0	
		Range	0-2	NA	NA	NA	0-8	NA	0-62	0-23	0-2	NA	0-6	0-4	NA	NA	
Jun 2003	1	# Birds	0	0	0	0	0	0	303	46	0	2	0	2	0	0	
		Ave. #/Visit	0	0	0	0	0	0	303	46	0	2	0	2	0	0	
		Range	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jul 2003	1	# Birds	0	0	0	0	0	0	82	38	0	0	0	16	0	0	
		Ave. #/Visit	0	0	0	0	0	0	82	38	0	0	0	16	0	0	
		Range	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Oct 2003	1	# Birds	0	1	1	0	0	0	40	7	0	0	2	8	0	0	
		Ave. #/Visit	0	1	1	0	0	0	40	7	0	0	2	8	0	0	
		Range	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Nov 2003	2	# Birds	0	0	0	0	0	0	0	0	0	0	7	19	2	0	
		Ave. #/Visit	0	0	0	0	0	0	0	0	0	0	3.5	9.5	1	0	
		Range	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0-7	3-16	0-2	NA	

Table 4.2-2. Observations of breeding waterfowl at Union Valley Reservoir as indicated by young of the year (YOY), 2002-2003.

Date	Species	No. Broods	Total No. YOY	YOY Per Brood	Brood Range	Location ¹	Comments
11 June 2002	Common Merganser	1	9	9	NA	Cove #2	Adult female with brood only mergansers seen
17 June 2002	Canada Goose	1	1	1	NA	Cove #2	1 gosling among 319 adult geese. Nest failures possible with suspected predation.
17 June 2002	Mallard	2	18	9	8-10	Cove #2 Cove #3	Adult pairs without young suggest nest failures
17 June 2002	Common Merganser	1	8	8	NA	Cove #11	
17 June 2003	Mallard	3	25	8.3	7-9	Cove #2 Cove #3 Cove #11	Adult pairs without young suggest nest failures
28 July 2003	Common Merganser	3	10	3.3	2-4	Cove #2	
28 July 2003	Mallard	5	26	5.2	2-11	Cove #2 Cove #3 Cove #11	

¹ Location designations refer to areas shown on Figure 3.2-1 (Appendix A).

4.2.1 Common Loon

Seven common loons (*Gavia immer*) were observed on four visits during winter (December 2002) and spring (April – May 2003) (Table 4.2-1). The greatest number of loons recorded during a single visit was three on April 25, 2003. Loons were only detected in deep-water locations near the center of the reservoir where they were actively diving for fish, preening, resting, and rarely vocalizing. No evidence of nesting was observed.

4.2.2 Pied-Billed Grebe

Pied-billed grebes (*Podilymbus podiceps*) were recorded on two spring visits (March - April 2003) and one fall visit (October 2003) (Table 4.2-1). Both spring detections were of two birds while the fall detection was of a single bird. All observations were made near the southern shore of the reservoir where the grebes actively fed and rested. No evidence of nesting was detected.

4.2.3 Eared Grebe

Eared grebes (*Podiceps nigricollis*) were recorded on six visits over four months in 2003: January, February, March, April, and October (Table 4.2-1). Numbers of eared grebes recorded during each of these visits ranged from one (5 visits) to three (1 visit). These birds were only detected in deep-water locations near the center of the reservoir where they were actively diving for fish, preening, and resting. No evidence of nesting was observed.

4.2.4 Western Grebe

Two western grebes (*Aechmophorus occidentalis*) were recorded on March 6, 2003 (Table 4.2-1). These birds were observed solely in deep-water locations near the center of the reservoir where they were actively diving for fish, preening, and resting. No evidence of nesting was observed.

4.2.5 American White Pelican

American white pelicans (*Pelecanus erythrorhynchos*) were observed on April 25 (6 birds) and May 9 (8 birds), 2003 (Table 4.2-1). The birds sighted on April 25 flew in to Union Valley Reservoir from the west, circled over the water in the vicinity of the Sunset/Fashoda peninsula, and then descended toward the cove adjacent to Sunset Beach and may have landed. No other information was available for this sighting or the one on May 9, 2003.

4.2.6 Tundra Swan

A small flock of tundra swans (*Cygnus columbianus*) was observed flying low over Union Valley Reservoir on each of three visits during winter 2003: January 24 (4 swans); February 4 (3 swans); and February 28 (5 swans) (Table 4.2-1). Each of these flocks flew low over Union Valley Reservoir and circled without landing.

4.2.7 Canada Goose

Canada geese were detected on 15 out of 31 visits to the study area (Table 4.2-1). During both 2002 and 2003, numbers of geese increased sharply in May (60-62 birds on a single visit), peaked in June (> 300 birds in a single visit), remained at relatively high numbers in July (65-82 birds on a single visit), and then declined sharply from late summer through late winter (0-40 birds on each visit). Geese concentrated their activity throughout a series of low-gradient coves and associated grassland- meadow habitats at various locations around the perimeter of Union Valley Reservoir (Figure 3.2-1, Appendix A). Three areas located along the northwest shore of the reservoir and two areas located along the southeast shore appear to receive the majority of use by geese. These coves have been designated as 2, 3, 4, 11, and 12 on Figure 3.2-1 (Appendix A). Detailed descriptions of these habitats are available in the *Technical Report on Riparian and Wetlands*. In summary, most of these wetlands are classified as palustrine emergent wetland and many are associated with ephemeral stream channels that recharge the meadows and maintain wet conditions. Geese graze extensively on herbaceous plants (e.g., *Carex vesicaria*, *Poa palustris*) within these shoreline and upland meadow/wetland habitats with peak utilization occurring as the reservoir fills each spring and water levels begin to extend into the upper reaches of coves. The arrival of increasing numbers of geese in the spring appears juxtaposed with this concurrent rise in water levels and the availability of increased forage and cover.

Evidence of successful nesting by Canada geese at Union Valley Reservoir was limited to one observation on June 17, 2002 of a single gosling with an adult pair in Cove #2 (Figure 3.2-1, Appendix A). On the same day, 319 adult Canada geese were observed at the reservoir, with

most of these birds believed to be mated pairs in family groups based on observed social interactions. No active or inactive nests were detected during this study.

4.2.8 Mallard

Mallards were detected on 12 of 31 visits to Union Valley Reservoir (Table 4.2-1). Numbers of birds observed were greatest from spring to early summer (March-July) with a high of 46 mallards recorded on June 17, 2002. In this respect, increases and declines in mallard numbers loosely mirrored that of Canada geese. Mallard habitat utilization also was nearly identical to that exhibited by geese with extensive use of shallow coves for resting, grazing, and presumably nesting as the reservoir neared capacity, and then became more scattered and less-intensive as reservoir levels receded.

Successful nesting by mallards at Union Valley Reservoir was confirmed solely by observations of two broods on June 17, 2002 (Total YOY = 18) and three broods on June 17, 2003 (Total YOY = 25). Brood size ranged from 7 to 10 ducklings. Broods were recorded in Coves 2, 3, and 10 as shown in Figure 3.2-1 (Appendix A). During these brood observations, several other mated pairs of mallards were observed without young. No active or inactive nests were detected during this study.

4.2.9 Blue-Winged Teal

A male-female pair of blue-winged teal (*Anas discors*) was recorded on June 17, 2002 and May 6, 2003 (Table 4.2-1). Both observations were of a pair in emergent wetlands west of Camino Cove Campground (Cove #2 in Figure 3.2-1, Appendix A). No evidence of nesting by this species was observed during field surveys.

4.2.10 Cinnamon Teal

Cinnamon teal (*Anas cyanoptera*) were observed on one visit in March 2003 (2 males; 1 female) and again on a single visit in June 2003 (1 male, 1 female) (Table 4.2-1). Both observations occurred in the emergent wetlands west of Camino Cove Campground (Cove #2 in Figure 3.2-1, Appendix A). No evidence of nesting by this species was observed during field surveys.

4.2.11 Bufflehead

Buffleheads were observed on 14 visits from January through November 2003 (Table 4.2-1). Numbers of birds observed on each of these visits ranged from 1 to 13 birds. Buffleheads occurred at points throughout the reservoir but were most frequently observed in the shallow coves both west and east of Camino Cove Campground (Coves #2 and #3 in Figure 3.2-1, Appendix A). No evidence of nesting by this species was detected during field observations. Of note, however, mated pairs were observed on several visits and an apparent early-season "courtship flight" involving four males and one female was observed on February 4, 2003.

4.2.12 Common Merganser

Common mergansers were the most frequently observed waterfowl species with detections on 20 of 31 visits to Union Valley Reservoir (Table 4.2-1). Observations were made in all months in which visits occurred with the exception of September. Mergansers typically occurred in small groups of less than five birds and often as single birds. Successful nesting was confirmed solely by observations of broods on three visits: June 11, 2002 (1 brood); June 17, 2002 (1 brood); and July 28, 2003 (3 broods). Total number of ducklings observed was 27 with brood sizes ranging from 2 to 9. Broods were recorded in Coves #2 and #11 as shown in Figure 3.2-1 (Appendix A).

4.2.13 Common Goldeneye

Common goldeneyes (*Bucephala clangula*) were observed on March 6, 2003 (1 bird) and November 26, 2003 (2 birds) (Table 4.2-1). No evidence of nesting by this species was observed.

4.2.14 Lesser Scaup

One lesser scaup (*Aythya affinis*) was observed on April 9, 2003 in the Jones Fork arm of Union Valley Reservoir (Table 4.2-1). No evidence of nesting by this species was observed.

4.3 Waterfowl Occurrence at Gerle Creek Reservoir

Six species of waterfowl were recorded at Gerle Creek Reservoir; Gerle Canal during 23 observational visits from May 2002 to July 2003 (Table 4.3-1). Bufflehead and common merganser were recorded most frequently (10 visits each), followed by Canada goose (8 visits), ruddy duck (*Oxyura jamaicensis*) (2 visits), and finally, ring-necked duck (*Aythya collaris*) and common goldeneye (1 visit each). Breeding was confirmed (by observations of young) for two species (Table 4.3-2), Canada goose and common merganser, but no nests were detected. Species by species results follow.

Month Year	No. Visits	Measure	Canada Goose	Bufflehead	Ring-necked Duck	Common Merganser	Common Goldeneye	Ruddy Duck
May 2002	1	# Birds	3	2	2	3	0	0
		Ave. #/Visit	3	2	2	3	0	0
		Range	NA	NA	NA	NA	NA	NA
June 2002	3	# Birds	3	0	0	10	0	0
		Ave. #/Visit	1	0	0	3.3	0	0
		Range	0-3	NA	NA	0-10	NA	NA
Sep 2002	2	# Birds	0	0	0	8	0	0
		Ave. #/Visit	0	0	0	4	0	0
		Range	NA	NA	NA	2-6	NA	NA
Oct 2002	4	# Birds	0	6	0	0	0	1
		Ave. #/Visit	0	1.5	0	0	0	0.25
		Range	NA	0-6	NA	NA	NA	0-1
Nov	3	# Birds	0	7	0	3	0	0

Table 4.3-1. Waterfowl surveys and detections at Gerle Creek Reservoir and Gerle Canal by month, 2002-2003.

Month Year	No. Visits	Measure	Canada Goose	Bufflehead	Ring-necked Duck	Common Merganser	Common Goldeneye	Ruddy Duck
2002		Ave. #/Visit	0	1.75	0	0.75	0	0
		Range	NA	3-4	NA	1-2	NA	NA
Dec 2002	1	# Birds	0	0	0	1	0	0
		Ave. #/Visit	0	0	0	1	0	0
		Range	NA	NA	NA	NA	NA	NA
Feb 2003	1	# Birds	0	0	0	0	0	0
		Ave. #/Visit	0	0	0	0	0	0
		Range	NA	NA	NA	NA	NA	NA
Mar 2003	1	# Birds	5	4	0	5	3	0
		Ave. #/Visit	5	4	0	5	3	0
		Range	NA	NA	NA	NA	NA	NA
Apr 2003	2	# Birds	11	27	0	0	0	0
		Ave. #/Visit	5.5	13.5	0	0	0	0
		Range	3-8	7-20	NA	NA	NA	NA
May 2003	2	# Birds	6	8	0	0	0	0
		Ave. #/Visit	3	4	0	0	0	0
		Range	2-4	NA	NA	NA	NA	NA
Jun 2003	2	# Birds	4	1	0	1	0	0
		Ave. #/Visit	2	0.5	0	0.5	0	0
		Range	0-4	0-1	NA	0-1	NA	NA
Jul 2003	1	# Birds	0	0	0	7	0	0
		Ave. #/Visit	0	0	0	7	0	0
		Range	NA	NA	NA	NA	NA	NA

Table 4.3-2. Observations of breeding waterfowl at Gerle Creek Reservoir and Gerle Canal as indicated by young of the year (YOY), 2002-2003.

Date	Species	No. Broods	Total No. YOY	YOY Per Brood	Brood Range	Location	Comments
14 May 2002	Canada Goose	1	1	1	NA	Gerle Creek Reservoir	2 adults with 1 gosling. Possible predation.
19 June 2002	Canada Goose	1	1	1	NA	Gerle Creek Reservoir	2 adults with 1 gosling. Same group as on 14 May
19 June 2002	Common Merganser	1	9	9	NA	Gerle Creek Reservoir	1 female with 9 YOY
17 July 2003	Common Merganser	1	6	6	NA	Gerle Canal	1 female with 6 YOY in canal

4.3.1 Canada Goose

Small numbers (i.e., 2-8 birds per observation) of Canada geese were recorded during spring and early summer on eight of 23 visits to the study area (Table 4.3-1). No geese were observed during in fall or winter observations. Geese rested on the reservoir surface and on land (primarily on islands and the northwest shoreline. Grazing opportunities were limited around the perimeter of Gerle Creek Reservoir to a few small grassland/meadow habitats. Detailed

descriptions of these habitats are available in the *Technical Report on Riparian and Wetlands*. Geese also utilized Gerle Canal and grazed on herbaceous vegetation associated with a few shallow coves along the canal.

Evidence of successful nesting by Canada geese at Gerle Creek Reservoir was limited to two observations (May 14 and June 19, 2002) of a mated pair accompanied by a single gosling (Table 4.3-2). No active or inactive nests were detected during this study.

4.3.2 Bufflehead

Buffleheads were observed on nine of 23 visits to the reservoir during fall (October-November 2002), spring (May 2002, March-May 2003), and early summer (June 2003) (Table 4.3-1). These birds rested and foraged throughout the reservoir. Buffleheads generally occurred in mixed-sex flocks with greater numbers of females than males observed during fall visits and a more even sex ratio in spring-summer visits. Successful nesting was not recorded. However, breeding activity was suggested by: 1) an observation of three males and one female engaged in a courtship flight on March 26, 2003; 2) observations of mated pairs on April 8, April 22, May 5, and May 21, 2003. The latter observation included two males in eclipse plumage. No active nests (e.g., in tree cavities) were detected during this study.

4.3.3 Ring-Necked Duck

Two ring-necked ducks were observed at Gerle Creek Reservoir on May 14, 2002 (Table 4.3-1). No other individuals of this species or evidence of nesting activity were recorded during the study.

4.3.4 Common Merganser

Common mergansers were the most frequently observed waterfowl species at Gerle Creek Reservoir with detections on 10 of 23 visits (Table 4.3-1). The number of mergansers observed on a single visit ranged from 1-10 birds. Successful nesting was confirmed solely by observations of broods on two visits (Table 4.3-2): June 19, 2002 (female with 9 YOY in Gerle Creek Reservoir) and July 17, 2002 (female with 6 YOY in Gerle Canal).

4.3.5 Common Goldeneye

Common goldeneyes were observed only on March 26, 2003 with three females swimming and diving on the north end of the reservoir (Table 4.3-1). No evidence of nesting by this species was detected.

4.3.6 Ruddy Duck

Ruddy ducks were observed on two visits: June 19, 2002 (male-female pair) and October 14, 2002 (1 female) (Table 4.3-1). These birds were actively diving for food at the north end of the reservoir. No evidence of nesting by this species was detected.

4.4 Incidental Observations of Waterfowl at Other Locations in the UARP Area

Waterfowl were recorded at various locations within the UARP area incidentally during the performance of other field excursions. These observations are summarized below by location.

4.4.1 Loon Lake Reservoir

Six species of waterfowl were recorded at Loon Lake Reservoir during 15 observational visits from September 2002 to July 2003 (Table 4.4.1-1). Common merganser was recorded most frequently (10 visits), followed by Canada goose (5 visits), bufflehead (3 visits), mallard (2 visits), and finally, common loon and eared grebe (1 visit each). On November 18, 2002, 12 ducks were observed on the eastern end of Loon Lake Reservoir but were at too great a distance for positive identification. Breeding was confirmed (by observations of young) for two species (Table 4.4.1-2): Canada goose (1 gosling on June 19, 2003 in northeast [Pleasant] arm of reservoir) and common merganser (2 broods with 15 and 16 YOY respectively), however no active or inactive nests were detected. Evidence of Canada goose breeding activity was limited to a single observation on June 19, 2003 of one gosling within a group of 15 adults in the northeast (Pleasant) arm of the reservoir. This flock was first located on the shore, did not vocalize upon approach by boat, and quickly moved into the surrounding forest for cover. Breeding by common merganser was evidenced by observation of two broods on July 29, 2003. One brood of 16 ducklings was with an adult female at the edge of the reservoir near the Loon Lake Powerhouse. These ducklings appeared to be less than one week old. The second brood of mergansers consisted of 15 ducklings approximately 2-3 weeks of age with an adult female in shallow water along the south shore of the reservoir.

Month Year	No. Visits	Measure	Common Loon	Eared Grebe	Canada Goose	Mallard	Bufflehead	Common Merganser	Unknown
Sep 2002	3	# Birds	0	1	0	0	0	0	0
		Ave. #/Visit	0	0.3	0	0	0	0	0
		Range	NA	0-1	NA	NA	NA	NA	NA
Oct 2002	2	# Birds	0	0	0	0	0	6	0
		Ave. #/Visit	0	0	0	0	0	3	0
		Range	NA	NA	NA	NA	NA	2-4	NA
Nov 2002	3	# Birds	0	0	0	0	0	4	12
		Ave. #/Visit	0	0	0	0	0	2	6
		Range	NA	NA	NA	NA	NA	NA	NA
Dec 2002	1	# Birds	0	0	0	0	0	0	0
		Ave. #/Visit	0	0	0	0	0	0	0
		Range	NA	NA	NA	NA	NA	NA	NA
Apr 2003	1	# Birds	0	0	0	0	3	2	0
		Ave. #/Visit	0	0	0	0	3	2	0
		Range	NA	NA	NA	NA	NA	NA	NA
May 2003	3	# Birds	1	0	14	4	13	15	0
		Ave. #/Visit	0.3	0	4.7	1.3	4.3	5	0
		Range	0-1	NA	2-10	0-2	0-9	2-10	NA
Jun 2003	1	# Birds	0	0	43	0	0	11	0
		Ave. #/Visit	0	0	43	0	0	11	0

Table 4.4.1-1. Waterfowl surveys and detections at Loon Lake Reservoir by month, 2002-2003.

Month Year	No. Visits	Measure	Common Loon	Eared Grebe	Canada Goose	Mallard	Bufflehead	Common Merganser	Unknown
		Range	NA	NA	NA	NA	NA	NA	NA
Jul 2003	1	# Birds	0	0	26	0	0	52	0
		Ave. #/Visit	0	0	26	0	0	52	0
		Range	NA	NA	NA	NA	NA	NA	NA

Table 4.4.1-2. Observations of breeding waterfowl at Loon Lake Reservoir as indicated by young of the year (YOY), 2003.

Date	Species	No. Broods	Total No. YOY	YOY Per Brood	Brood Range	Location	Comments
19 June 2003	Canada Goose	1	1	1	NA	Pleasant Arm	1 YOY with 15 adults
29 July 2003	Common Merganser	2	31	15.5	15-16	Powerhouse South Shore	1 fem. with 16 YOY near PH; 1 fem. with 15 YOY near south shore

4.4.2 Ice House Reservoir

Six species of waterfowl were recorded at Ice House Reservoir during 12 visits from June 2002 to July 2003 (Table 4.4.2-1). Common merganser was recorded most frequently (6 visits), followed by Canada goose (4 visits), bufflehead and mallard (2 visits each), and finally, common loon and common goldeneye (1 visit each). Breeding was confirmed (by observations of young) for two species (Table 4.4.2-2): 1) Canada goose (5 goslings on June 17, 2003 in cove adjacent to Ice House Campground and 4 goslings in the same location on July 28, 2003), and 2) common merganser (2 broods on the east end of the reservoir on July 28, 2003 with 3 and 12 YOY respectively). No active or inactive nests were detected. The Canada goose goslings were with 31 adults on June 17 and with 18 adults on July 28. These geese were in close proximity to recreationists but displayed no avoidance behavior. Humans fed these geese on both visits. The larger brood of 12 common merganser ducklings and an adult female observed on July 28 were scattered by an attacking Cooper’s hawk but all survived the encounter.

Table 4.4.2-1. Waterfowl surveys and detections at Ice House Reservoir by month, 2002-2003.

Month Year	No. Visits	Measure	Common Loon	Canada Goose	Mallard	Bufflehead	Common Merganser	Common Goldeneye
Jun 2002	1	# Birds	0	0	0	3	2	0
		Ave. #/Visit	0	0	0	3	2	0
		Range	NA	NA	NA	NA	NA	NA
Sep 2002	3	# Birds	0	0	0	0	0	0
		Ave. #/Visit	0	0	0	0	0	0
		Range	NA	NA	NA	NA	NA	NA
Nov 2002	1	# Birds	0	0	0	0	4	0
		Ave. #/Visit	0	0	0	0	4	0
		Range	NA	NA	NA	NA	NA	NA
Dec	1	# Birds	0	0	0	0	0	0

Table 4.4.2-1. Waterfowl surveys and detections at Ice House Reservoir by month, 2002-2003.

Month Year	No. Visits	Measure	Common Loon	Canada Goose	Mallard	Bufflehead	Common Merganser	Common Goldeneye
2002		Ave. #/Visit	0	0	0	0	0	0
		Range	NA	NA	NA	NA	NA	NA
Feb 2003	2	# Birds	0	0	0	6	1	1
		Ave. #/Visit	0	0	0	3	0.5	0.5
		Range	NA	NA	NA	0-6	0-1	0-1
Apr 2003	1	# Birds	0	1	1	0	2	0
		Ave. #/Visit	0	1	1	0	2	0
		Range	NA	NA	NA	NA	NA	NA
May 2003	1	# Birds	1	2	0	0	0	0
		Ave. #/Visit	1	2	0	0	0	0
		Range	NA	NA	NA	NA	NA	NA
Jun 2003	1	# Birds	0	36	3	0	11	0
		Ave. #/Visit	0	36	3	0	11	0
		Range	NA	NA	NA	NA	NA	NA
Jul 2003	1	# Birds	0	24	0	0	19	0
		Ave. #/Visit	0	24	0	0	19	0
		Range	NA	NA	NA	NA	NA	NA

Table 4.4.2-2. Observations of breeding waterfowl at Ice House Reservoir as indicated by young of the year (YOY), 2003.

Date	Species	No. Broods	Total YOY	YOY Per Brood	Brood Range	Location	Comments
17 June 2003	Canada Goose	1	5	5	NA	Ice House CG Cove	5 YOY with 31 adults
28 July 2003	Canada Goose	1	4	4	NA	Ice House CG Cove	4 YOY with 18 adults. Presumed same as brood on July 17.
28 July 2003	Common Merganser	2	15	7.5	3-12	SE Arm NE Arm	Brood with 12 YOY in SE arm scattered when threatened by Cooper's Hawk

4.4.3 Other Reservoirs and Ponds in Study Area

Incidental observations of waterfowl were recorded at three other UARP reservoirs and two seasonal ponds within the UARP area during the performance of other field investigations.

- Rubicon and Buck Island Reservoirs: Approximately 20-30 common mergansers were observed on June 26, 2002. No other observations were made at this location.
- Junction Reservoir: An adult male wood duck was observed on June 5, 2003. No other waterfowl were recorded at this location.

- **Bufflehead Pond:** This seasonal pond is located at the intersection of Ice House Road and the road to Loon Lake Boat Ramp and Campground. Biologists unofficially designated the pond as “bufflehead pond” in reference to the first species detected at the site. Buffleheads were observed on five of 10 visits to the pond from May 2002 to June 2003 (Table 4.4.3-1). Mallards were observed on two of 10 visits. No evidence of nesting was observed at this location.
- **Wood Duck Pond:** This seasonal pond is located on the south side of the gated access road to Gerle Creek Dam about 0.25-mile west of Ice House Road. Biologists unofficially designated the pond as “wood duck pond” in reference to the first species detected at the site. A male-female pair of wood ducks was observed on three occasions during April and May 2003 (Table 4.4.3-1). A mixed-sex flock of six mallards was observed on April 22, 2003 and a male bufflehead was observed on May 7, 2003. No evidence of nesting was observed but habitat seems suitable for cavity-nesting waterfowl such as wood duck.

Table 4.4.3-1. Incidental waterfowl observations at “Bufflehead Pond” and “Wood Duck Pond”, 2002-2003.

Location	Date	Species	Comment
Bufflehead Pond	May 29, 2002	Bufflehead	2 males
Bufflehead Pond	June 11, 2002	Bufflehead	1 male
Bufflehead Pond	June 18, 2002	Bufflehead, Mallard	2 female buffleheads and 1 female mallard
Bufflehead Pond	July 16, 2002	Bufflehead	2 females
Bufflehead Pond	September 9, 2002	Mallard	1 male in eclipse plumage and 1 female
Bufflehead Pond	June 3, 2003	Bufflehead	2 males
Wood Duck Pond	April 22, 2003	Wood Duck, Mallard	Mated pair wood ducks; 6 mallards
Wood Duck Pond	May 7, 2003	Wood Duck, Bufflehead	Mated pair wood ducks; 1 male bufflehead
Wood Duck Pond	May 21, 2003	Wood Duck	Mated pair

No waterfowl were observed during several visits to the remaining UARP reservoirs: Robbs Peak Forebay, Camino Reservoir, Brush Creek Reservoir, and Slab Creek Reservoir. Visits to these reservoirs were generally brief and involved scanning the reservoir with binoculars from the vicinity of their respective dams. However, a day-long survey of Slab Creek Reservoir was conducted by canoe on June 19, 2003 and no waterfowl were observed during this visit. Monthly reservoir visits were made by others from June through October, 2003; again no waterfowl were observed (pers. comm. L. Maier).

4.5 Nesting and Foraging Habitats at Union Valley and Gerle Creek Reservoirs

Upland meadows and grasslands located around the perimeter of Union Valley and Gerle Creek reservoirs provide potential nesting and foraging habitat for ground-nesting waterfowl such as Canada geese and mallards. Detailed descriptions of the vegetative conditions at these sites as well as those associated with other Project reservoirs are provided in the *Riparian and Wetlands Technical Report* and the *Vegetation Mapping Technical Report*.

4.6 Reservoir Fluctuations and Habitat Photo-Documentation

4.6.1 Union Valley Reservoir

The operation of Union Valley Reservoir follows an annual cycle of reservoir fill and release that coincides with natural patterns of rain and snowmelt runoff in the Sierra Nevada (SMUD 2001). Typically, from mid-summer to mid-fall each year, the elevation of the reservoir is gradually lowered to generate electricity and provide adequate storage space to store winter/spring runoff and minimize the frequency and amount of spillage. Reservoir elevations then rise slowly during the spring and early summer as rain and snowmelt runoff fill the reservoir.

The maximum surface elevation (top of spill gates) at Union Valley Reservoir is 4,870 feet. The 23-year averages for March, April, May, and June (typical nesting and brood raising period) are 4,816, 4,828, 4,849, and 4,845 feet, respectively (Table 4.6-1). A graphic depiction of these monthly average surface water elevations relative to reservoir topography is shown in Figure 3.2-1 (Appendix A). Photographs documenting habitat conditions and reservoir encroachment at fixed stations identified in Figure 3.2-1 (Appendix A) are provided in Appendix C.

Year	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Max	Min
1980	4841	4845	4846	4844	4850	4855	4858	4852	4839	4825	4821	4808	4859	4801
1981	4794	4787	4790	4810	4827	4831	4819	4801	4776	4764	4781	4815	4839	4763
1982	4843	4845	4848	4849	4856	4859	4855	4845	4828	4824	4836	4838	4860	4820
1983	4840	4844	4844	4842	4839	4855	4859	4857	4856	4853	4850	4849	4859	4835
1984	4846	4839	4838	4836	4842	4855	4857	4850	4839	4828	4831	4840	4859	4826
1985	4840	4832	4829	4840	4852	4856	4850	4839	4824	4814	4820	4821	4856	4812
1986	4822	4837	4850	4852	4856	4857	4851	4841	4824	4815	4809	4798	4859	4792
1987	4790	4786	4786	4801	4811	4803	4784	4756	4724	4721	4750	4763	4812	4709
1988	4757	4748	4746	4750	4768	4778	4775	4770	4756	4740	4733	4733	4779	4728
1989	4724	4715	4761	4821	4847	4858	4855	4845	4832	4825	4833	4836	4859	4711
1990	4833	4832	4836	4847	4853	4857	4852	4841	4826	4813	4805	4791	4858	4783
1991	4776	4765	4770	4794	4819	4835	4833	4821	4809	4809	4804	4792	4838	4761
1992	4779	4776	4800	4818	4821	4814	4813	4808	4796	4783	4777	4771	4823	4768
1993	4773	4791	4809	4835	4850	4858	4857	4851	4838	4833	4825	4812	4858	4765
1994	4803	4801	4808	4821	4829	4828	4820	4814	4806	4798	4795	4799	4831	4793
1995	4814	4830	4843	4852	4856	4858	4859	4856	4848	4837	4823	4819	4859	4800
1996	4824	4841	4848	4851	4857	4858	4857	4852	4846	4837	4837	4845	4859	4821
1997	4848	4844	4843	4845	4856	4859	4855	4850	4841	4826	4820	4814	4859	4810
1998	4815	4829	4827	4837	4850	4857	4859	4850	4834	4822	4817	4818	4859	4807
1999	4822	4838	4840	4831	4842	4855	4855	4842	4825	4813	4813	4802	4858	4794
2000	4797	4824	4832	4847	4862	4866	4856	4845	4818	4809	4793	4764	4868	4747
2001	4731	4727	4741	4770	4796	4800	4793	4785	4781	4784	4789	4796	4801	4724
2002	4806	4811	4824	4846	4862	4867	4864	4853	4837	4823	4814	4818	4868	4801
2003	4823	4820	4828	4842	4858	4866	4861	4847	4842	4836	4830	4826	4867	4819
Max	4855	4851	4852	4856	4868	4868	4868	4859	4857	4857	4851	4851	4868	N/A
Min	4719	4711	4720	4746	4761	4775	4771	4738	4712	4709	4731	4728	N/A	4709

Table 4.6-1. Union Valley Reservoir average monthly water elevations, 1980-2003.

Year	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Max	Min
Average	4806	4809	4816	4828	4840	4845	4842	4832	4819	4810	4809	4807	N/A	N/A

4.6.2 Gerle Creek Reservoir

Gerle Creek Reservoir has a maximum surface elevation of 5,231 feet (SMUD 2001). The reservoir is operated in run-of-the-river mode passing water transported from the Loon Lake Powerhouse via the Loon Lake Tailrace Tunnel and capturing the inflows from Gerle Creek and Angel Creek. Storage is released from the reservoir to meet minimum streamflow release requirements of 4 to 7 cfs. Because the reservoir is operated in run-of-the-river mode, water level in the reservoir fluctuates with changing volumes of inflow, typically ranging between 5,226 feet to 5,231 feet. Photographs depicting typical shoreline habitat conditions at lower and higher surface water elevations are provided in Appendix C.

4.7 Incidental Observations

Biologists recorded approximately 140 species of birds and mammals during UARP field studies including this Waterfowl Nesting Habitat Study. These incidental observations are provided in Appendix D.

5.0 ANALYSIS

5.1 Waterfowl Occurrence

Occurrence and distribution of the 17 waterfowl species observed during this study are generally consistent with published records (McCaskie *et al.* 1979, Zeiner *et al.* 1990) and predictive models (e.g., California Wildlife Habitat Relationships System). However, a comparison of species observed in this study with a checklist of birds reported to occur in the region (Eldorado National Forest 1995) identifies some unusual occurrences (Table 5.1-1). Five species not included on the Eldorado National Forest list were recorded during relicensing studies: Tundra swan, blue-winged teal, cinnamon teal, ring-necked duck, and lesser scaup. At least four other species appear to be more common in certain seasons than suggested by the Eldorado National Forest checklist: American white pelican, Canada goose, mallard, and bufflehead. Both the Forest list and the results of relicensing studies identify the only confirmed breeding species as Canada goose, mallard, and common merganser.

Table 5.1-1. Comparison of waterfowl expected occurrences on UARP reservoirs by season based on records from Eldorado National Forest (1995) and SMUD relicensing studies.

Species	Confirmed Breeding		Spring Mar 1–May 31		Summer Jun 1-Aug 31		Fall Sep 1-Nov 30		Winter Dec 1-Feb 28	
	USFS	SMUD	USFS	SMUD	USFS	SMUD	USFS	SMUD	USFS	SMUD
Common Loon	No	No	R	R	*	*	R	*	*	R
Pied-billed Grebe	No	No	U	U	U	*	U	U	U	*
Eared Grebe	No	No	*	U	*	*	Ca	U	*	U
Western Grebe	No	No	Ca	Ca	*	*	Ca	*	*	*

Table 5.1-1. Comparison of waterfowl expected occurrences on UARP reservoirs by season based on records from Eldorado National Forest (1995) and SMUD relicensing studies.

Species	Confirmed Breeding		Spring Mar 1–May 31		Summer Jun 1-Aug 31		Fall Sep 1-Nov 30		Winter Dec 1-Feb 28	
	USFS	SMUD	USFS	SMUD	USFS	SMUD	USFS	SMUD	USFS	SMUD
Am. White Pelican	No	No	Acc	R	*	*	*	*	*	*
Tundra Swan	No	No	*	*	*	*	*	*	*	Ca
Canada Goose	Yes	Yes	Fc	C	Fc	C	Fc	Fc	Fc	U
Mallard	Yes	Yes	Fc	C	Fc	C	Fc	Fc	Fc	U
Blue-winged Teal	No	No	*	Ca	*	Ca	*	*	*	*
Cinnamon Teal	No	No	*	Ca	*	Ca	*	*	*	*
Wood Duck	No	No	R	R	R	R	R	*	U	*
Ring-necked Duck	No	No	*	Ca	*	*	*	*	*	*
Common Merganser	Yes	Yes	Fc	Fc	Fc	C	Fc	Fc	Fc	Fc
Bufflehead	No	No	Ca	C	*	FC	Ca	Fc	R	U
Common Goldeneye	No	No	*	R	*	*	*	R	Ca	R
Lesser Scaup	No	No	*	Ca	*	*	*	*	*	*
Ruddy Duck	No	No	U	*	*	U	R	R	U	*

C = Common: Almost always encountered during an outing in proper season and habitat.
 Fc = Fairly Common: Often encountered in specific habitats or in some years.
 U = Uncommon: Present, but not certain to be encountered during an outing in proper season and habitat.
 R = Rare: Present, but in very low numbers. Not likely to be encountered even in proper habitat.
 Ca = Casual: Few records but reasonably expected to occur again.
 Acc = Accidental: Of unexpected and unpredictable occurrence.
 * = No records for this season.

5.2 Waterfowl Nesting Activity

At Union Valley and Gerle Creek reservoirs, several factors could influence successful nesting by waterfowl, either independently or synergistically. These factors are addressed below.

5.2.1 Breeding Range by Species

Union Valley and Gerle Creek reservoirs are within the documented breeding range of the three species confirmed as breeders during this study: Canada goose, mallard, and common merganser. None of the remaining 14 species of waterfowl observed during this study are reported to breed in the Crystal Basin based on published distribution maps and species accounts (Table 5.2.1-1).

Table 5.2.1-1. Breeding range of waterfowl species recorded during relicensing studies, 2002-2003. (Sources : Cogswell 1977, Zeiner et al. 1990).

Species	General Breeding Range	Sierra Nevada Breeding Range
Common Loon	Canada and northern U.S.	Formerly in lakes east of Mt. Lassen
Pied-billed Grebe	Across U.S.	Marshy habitats. Rare above foothills
Eared Grebe	Mexico, western U.S., and southwest Canada	Marshy lakes throughout range but declining
Western Grebe	So. Canada to Central California, Colorado	Marshy lakes at lower elevations
Am. White Pelican	Southern Canada to Utah, Nevada, NE Calif.	No current breeding in Sierra Nevada
Tundra Swan	Alaska and northern Canada	Does not breed in Sierra Nevada
Canada Goose	Alaska, Canada, northern U.S.	Central and northern part of range
Mallard	Northern hemisphere	Breeds throughout range
Blue-winged Teal	Southern Canada and northern U.S.	Not known to breed in Sierra Nevada

Table 5.2.1-1. Breeding range of waterfowl species recorded during relicensing studies, 2002-2003. (Sources : Cogswell 1977, Zeiner *et al.* 1990).

Species	General Breeding Range	Sierra Nevada Breeding Range
Cinnamon Teal	Southern Canada, western U.S., no. Mexico	Not known to breed in Sierra Nevada
Wood Duck	Southern Canada, eastern and northwest U.S.	Wooded lakes/ponds in no. Sierra Nevada
Ring-necked Duck	Alaska, Canada, northern U.S.	Northern Sierra Nevada
Common Merganser	Canada, western and northeast U.S.	Common throughout Sierra Nevada
Bufflehead	Alaska, Canada, northwest U.S.	Not known to breed in Sierra Nevada
Common Goldeneye	Alaska, Canada, northern U.S.	Not known to breed in Sierra Nevada
Lesser Scaup	Alaska, Canada, north-central U.S.	Not known to breed in Sierra Nevada
Ruddy Duck	So. Canada, western U.S., Mexico	Not known to breed in Sierra Nevada

5.2.2 Reservoir Fluctuations

Waterfowl nesting on reservoirs can be adversely affected by fluctuating water levels during nest building, incubation, and brood-rearing. Rising water levels can flood nests if constructed below the high-water mark and falling water levels can make nests constructed on islands more accessible to predation and other disturbances. At Union Valley Reservoir, surface water elevations generally rise slowly during the nest building and incubation stages of the breeding cycle. The 23-year monthly average surface elevations for April (early nest building period for most species) and June (late incubation period for most species) are 4,828 feet and 4,845 feet, respectively – a difference of 17 feet (Table 4.6-1). The greatest change in average monthly elevations from April to June occurred in 1989 with an increase of 37 feet. Based on USGS topographic maps, a 37-foot change in elevation can result in up to approximately 1,900 feet of horizontal movement in the water line in some of the low-gradient coves at Union Valley Reservoir. Obviously, nests established near the water line in April under these conditions would be flooded before incubation was completed. However, that is not likely the case at Union Valley or other UARP reservoirs because of the nearly complete absence of suitable nesting cover for waterfowl below the high water mark surrounding these reservoirs. Since Canada geese and mallards, two of the three species known to breed in the UARP area, typically require at least some degree of herbaceous vegetation for ground nests, it is unlikely that they nest below the high water mark. Common merganser, the third species known to breed in the area, nests predominantly in tree cavities and would also not be subject to nest flooding.

5.2.3 Availability of Nesting Cover and Forage

The amount of herbaceous nesting cover above the high water line at Union Valley Reservoir varies by location and annual growth patterns. During relicensing studies in 2002 and 2003, herbaceous growth near the high water mark was fairly minimal in April with extensive, lush growth not developing until late June-early July (see photo-documentation in Appendix C.). In some years, snow remains on the ground through mid-April. In the absence of suitable cover near the reservoir edge, waterfowl may nest some distance away from water where cover is available, delay nesting until cover develops, or not nest at a given location.

5.2.4 Predation

Predation is suspected as a major factor in low brood production and survival at Union Valley and other Project reservoirs. Numerous potential predators exist in the area including bald eagle and other large raptors, coyote, gray fox, raccoon, bobcat, and others. Biologists conducting relicensing studies observed as many as 12 coyotes at a single time in the meadows near Camino Cove, which represent some of the best quality, nesting habitat available at Union Valley Reservoir. Predation on geese in these meadows was confirmed by observations of several carcasses and feather piles during 2002 and 2003. The detection of only one gosling at Union Valley Reservoir during 2002-2003 is unusual when considering that Canada geese typically lay 4-7 eggs per nest attempt (Cogswell 1977). Although loss of eggs or young can be attributed to several other factors, predation must be considered as a contributing factor at this location.

5.2.5 Recreation

The best quality nesting habitats for Canada geese and mallards at Union Valley and Gerle Creek reservoirs are generally in close proximity to heavily used campgrounds, beaches, and other recreation sites. However, recreation activity is generally minimal during the expected April-May egg laying/incubation period for Canada geese and mallards. Recreation intensifies after Memorial Day when most eggs have hatched and parents are brooding young. Observations made during this study indicate that Canada geese, and to a lesser extent mallards, habituate rapidly to human activity and have been seen feeding out of human hands on many occasions.

6.0 LITERATURE CITED

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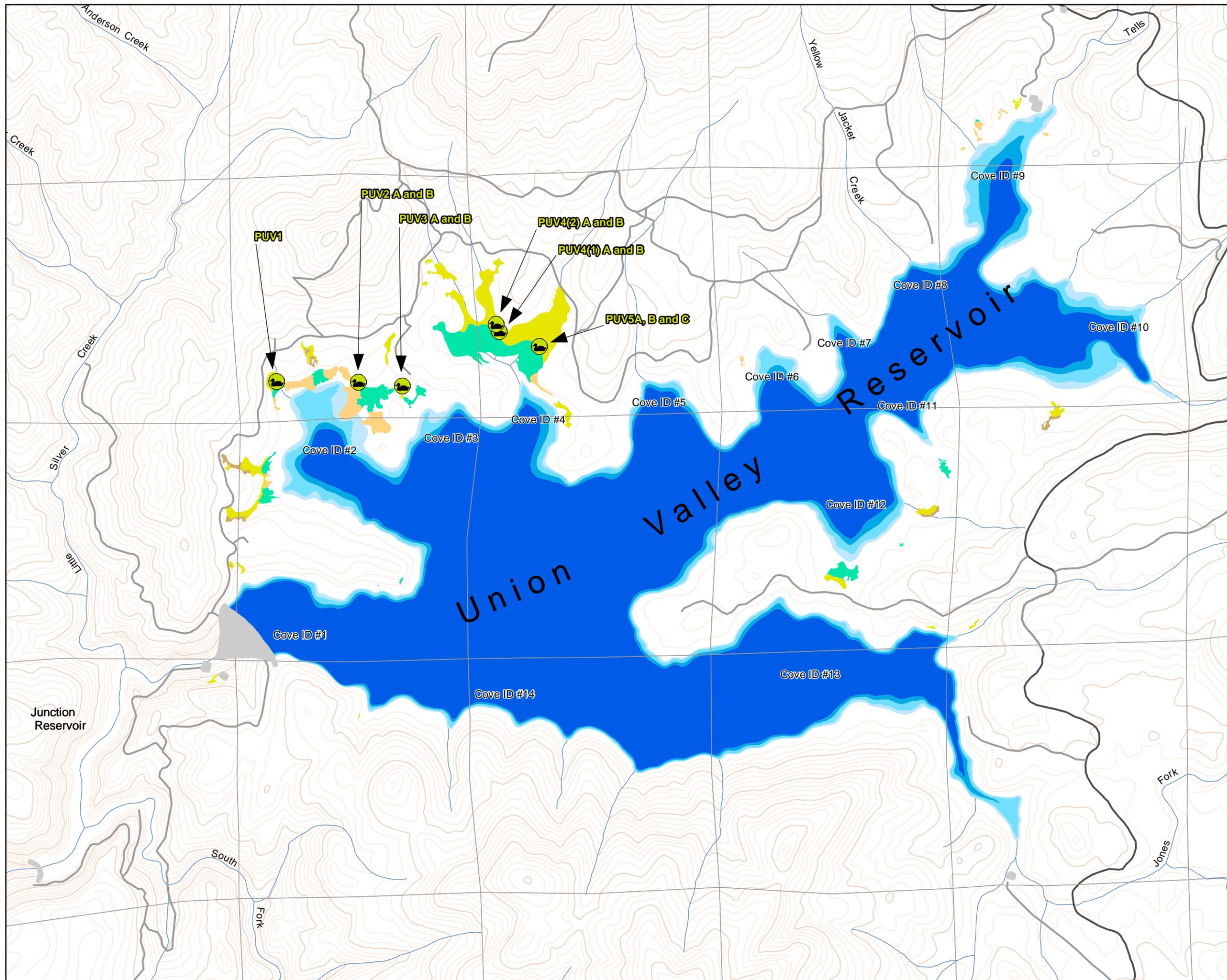
APPENDIX A

FIGURE 3.2.1. WATERFOWL HABITAT AND SURVEY LOCATIONS AT UNION VALLEY RESERVOIR

Upper American River Project



**Figure 3.2-1
Waterfowl Habitat
and Survey
Locations at
Union Valley
Reservoir**



- Wetland Type**
- Wet Meadow
 - Lake Shore Basin Wetland
 - Mountain Alder
 - Wetland - Below High Water

- Lake Levels
23 Year Average Elevations**
- March 4,816 ft
 - April 4,828 ft
 - May 4,840 ft
 - June 4,845 ft

- Waterfowl photo documentation station



SCALE 1:25,000



APPENDIX B

DETAILED FIELD DATA FOR UPPER AMERICAN RIVER PROJECT WATERFOWL STUDY

- B-1 – Sortable results of waterfowl surveys at Upper American River Project reservoirs, May 14, 2002 to November 26, 2003
- B-2 – Results of waterfowl surveys at Upper American River Project reservoirs, May 14, 2002 to November 26, 2003 (sorted by location)
- B-3 – Results of waterfowl surveys at Upper American River Project reservoirs, May 14, 2002 to November 26, 2003 (sorted by species)

Appendix B-1. Sortable results of waterfowl surveys at Upper American River Project reservoirs, May 14, 2002 to November 26, 2003 (sorted by date of observation).							
Survey Date	Survey Method	Reservoir	Location	Species	Number (Adults-YOY-Undetermined)	Activity B = Breeding F = Feeding R = Resting	Comments
5/14/2002	Car - Foot	Gerle Creek	NA	Bufflehead	2 (2-0-0)	F, R	
5/14/2002	Car - Foot	Gerle Creek	NA	Common merganser	3 (3-0-0)	F, R	
5/14/2002	Car - Foot	Gerle Creek	NA	Ring-necked Duck	2 (2-0-0)	F, R	
5/14/2002	Car - Foot	Gerle Creek	NA	Canada goose	2 (2-1-0)	B, F, R	2 adults with 1 gosling. Low brood size possibly due to predation.
5/14/2002	Car	Gerle Canal	NA	Canada goose	1 (1-0-0)	F, R	1 adult swimmin in canal. Extensive goose excrement on upland.
5/29/2002	Helicopter	Union Valley	Camino Cove	Canada goose	60 (0-0-60)	F, R	Approximately 60 geese seen from air during flight over UVR.
5/29/2002	Car - Foot	Bufflehead Pond	NA	Bufflehead	2 (2-0-0)	F, R	2 males seen on small pond near turn off to Loon Lake CG
6/10/2002	Car - Foot	Gerle Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
6/11/2002	Car - Foot	Bufflehead Pond	NA	Bufflehead	1 (1-0-0)	F, R	1 adult male.
6/11/2002	Car - Foot	Union Valley	Camino Cove	Canada goose	110 (0-0-110)	F, R	Feeding in shallow water.
6/11/2002	Car - Foot	Union Valley	Camino Cove	Mallard	3 (3-0-0)	F, R	Birds in post-breeding moult (eclipse)
6/11/2002	Car - Foot	Union Valley	Camino Cove	Common merganser	10 (1-9-0)	B, F, R	1 adult female with 9 chicks
6/11/2002	Car - Foot	Gerle Creek	NA	Ruddy Duck	2 (2-0-0)	F, R	1 adult male with 1 adult female
6/12/2002	Car - Foot	Union Valley	Granlee's Cove	Canada goose	65 (0-0-65)	F, R	
6/13/2002	Car - Foot	Ice House	NA	Bufflehead	3 (3-0-0)	F, R	1 male, 2 females
6/13/2002	Car - Foot	Ice House	NA	Common merganser	2 (2-0-0)	F, R	2 females near dam
6/17/2002	Boat	Union Valley	NA	Canada goose	320 (319-1-0)	B, F, R	Only 1 gosling observed among 319 adult geese
6/17/2002	Boat	Union Valley	NA	Mallard	29 (11-18-0)	B, F, R	7 adults and 18 YOY
6/17/2002	Boat	Union Valley	Camino Cove	Blue-winged teal	2 (2-0-0)	F, R	1 male and 1 female
6/17/2002	Boat	Union Valley	Granlee's Cove	Common merganser	9 (1-8-0)	B, F, R	1 adult female with 8 chicks. Could be brood from 6/11/02 at Camino Cove
6/18/2002	Car - Foot	Bufflehead Pond	NA	Bufflehead	2 (2-0-0)	F, R	2 females
6/18/2002	Car - Foot	Bufflehead Pond	NA	Mallard	1 (1-0-0)	F, R	1 female
6/19/2002	Car - Foot	Gerle Creek	NA	Canada goose	3 (2-1-0)	B, F, R	2 adults with 1 gosling. See observation from 5/14/2002
6/19/2002	Car - Foot	Gerle Creek	NA	Common merganser	10 (1-9-0)	B, F, R	1 female with 9 chicks
6/26/2002	Foot	Rubicon	NA	Common merganser	3 (0-0-3)	F, R	
7/9/2002	Foot	Union Valley	NA	Canada goose	65 (65-0-0)	F, R	Geese feeding in meadow just east of Camino Cove CG
7/16/2002	Car - Foot	Bufflehead Pond	NA	Bufflehead	2 (2-0-0)	F, R	2 females
9/1/2002	Car - Foot	Union Valley	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/9/2002	Car - Foot	Bufflehead Pond	NA	Mallard	2 (2-0-0)	F, R	1 male in eclipse plumage and 1 female. Pond level has dropped about 1 ft.
9/16/2002	Car - Foot	Union Valley	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/16/2002	Car - Foot	Bufflehead Pond	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/16/2002	Car - Foot	Ice House	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/16/2002	Car - Foot	Loon Lake	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/16/2002	Car - Foot	Gerle Canal	NA	Common merganser	6 (0-0-6)	F, R	6 mergansers swimming in Gerle Creek Canal
9/23/2002	Car - Foot	Union Valley	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/23/2002	Car - Foot	Bufflehead Pond	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/23/2002	Car - Foot	Ice House	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/23/2002	Car - Foot	Loon Lake	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/23/2002	Car - Foot	Gerle Creek	NA	Common merganser	2 (2-0-0)	F, R	
9/30/2002	Car - Foot	Bufflehead Pond	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/30/2002	Car - Foot	Ice House	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/30/2002	Car - Foot	Loon Lake	NA	Eared grebe	1 (1-0-0)	F, R	
10/1/2002	Car - Foot	Union Valley	NA	Common merganser	4 (0-0-4)	F, R	
10/1/2002	Car - Foot	Loon Lake	NA	Common merganser	4 (0-0-4)	F, R	
10/7/2002	Car - Foot	Gerle Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey

Appendix B-1. Sortable results of waterfowl surveys at Upper American River Project reservoirs, May 14, 2002 to November 26, 2003 (sorted by date of observation).

Survey Date	Survey Method	Reservoir	Location	Species	Number (Adults-YOY-Undetermined)	Activity B = Breeding F = Feeding R = Resting	Comments
10/7/2002	Car - Foot	Union Valley	Camino Cove	Mallard	1 (1-0-0)	F, R	
10/14/2002	Car - Foot	Gerle Creek	NA	Ruddy Duck	1 (1-0-0)	F, R	1 female
10/21/2002	Car - Foot	Gerle Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
10/28/2002	Car - Foot	Gerle Creek	NA	Bufflehead	6 (6-0-0)	F, R	1 male, 5 females
10/28/2002	Car - Foot	Loon Lake	NA	Common merganser	2 (2-0-0)	F, R	1 male in early breeding plumage with 1 female
11/4/2002	Car - Foot	Loon Lake	NA	Common merganser	2 (2-0-0)	F, R	1 male and 1 female paired
11/4/2002	Car - Foot	Gerle Creek	NA	Bufflehead	4 (4-0-0)	F, R	2 males with 2 females
11/11/2002	Car - Foot	Loon Lake	NA	Common merganser	2 (0-0-2)	F, R	
11/11/2002	Car - Foot	Gerle Creek	NA	Common merganser	2 (2-0-0)	F, R	2 adult males
11/18/2002	Car - Foot	Gerle Creek	NA	Common merganser	1 (1-0-0)	F, R	1 female perched on log boom then flew toward north end of reservoir
11/18/2002	Car - Foot	Gerle Creek	NA	Bufflehead	3 (3-0-0)	F, R	3 females near intake structure
11/18/2002	Car - Foot	Loon Lake	NA	Unidentified	12 (0-0-12)	F, R	12 ducks observed but too far away to tell species
11/18/2002	Car - Foot	Ice House	NA	Common merganser	4 (4-0-0)	F, R	4 males
12/30/2002	Car - Foot	Loon Lake	NA	None	0 (0-0-0)	NA	No waterfowl observed. Reservoir is drawn down and mostly frozen over.
12/30/2002	Car - Foot	Gerle Creek	NA	Common merganser	1 (1-0-0)	F, R	1 male. Reservoir at low level but not frozen
12/30/2002	Car - Foot	Ice House	NA	None	0 (0-0-0)	NA	No waterfowl observed from boat ramp and dam
12/30/2002	Car - Foot	Union Valley	NA	Common merganser	1 (1-0-0)	F, R	1 female observed from West Point area and dam.
12/30/2002	Car - Foot	Union Valley	NA	Common loon	1 (1-0-0)	F, R	Observed from dam. Mike Smith had also reported a loon from area.
1/15/2003	Boat	Union Valley	NA	Common merganser	5 (0-0-5)	F, R	Reported by Mike Smith during bald eagle prey surveys
1/15/2003	Boat	Union Valley	NA	Bufflehead	5 (0-0-0)	F, R	Reported by Mike Smith during bald eagle prey surveys
1/15/2003	Boat	Union Valley	NA	Eared grebe	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle prey surveys
1/24/2003	Boat	Union Valley	NA	Common merganser	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle prey surveys
1/24/2003	Boat	Union Valley	NA	Bufflehead	7 (0-0-7)	F, R	Reported by Mike Smith during bald eagle prey surveys
1/24/2003	Boat	Union Valley	NA	Tundra swan	4 (0-0-4)	F, R	Reported by Mike Smith during bald eagle prey surveys
1/24/2003	Boat	Union Valley	NA	Mallard	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle prey surveys
2/4/2003	Boat	Ice House	NA	Bufflehead	6 (0-0-6)	F, R	
2/4/2003	Boat	Ice House	NA	Common merganser	1 (1-0-0)	F, R	1 male
2/4/2003	Boat	Ice House	NA	Common goldeneye	1 (1-0-0)	F, R	1 male
2/4/2003	Boat	Union Valley	Jones Fork	Bufflehead	5 (5-0-0)	F, R	4 males, 1 fem. in Jones Fk arm and later near Camino Cove in courtship flight
2/4/2003	Boat	Union Valley	NA	Common merganser	6 (6-0-0)	F, R	6 females at various locations incl. Fashoda Point, Camino Cove, & Jones Fk
2/4/2003	Boat	Union Valley	NA	Tundra swan	3 (0-0-3)	Flying	Flew over UVR from east-west then off toward northeast.
2/6/2003	Boat	Union Valley	NA	Bufflehead	3 (0-0-3)	F, R	
2/6/2003	Boat	Union Valley	NA	Common merganser	3 (0-0-3)	F, R	
2/6/2003	Boat	Union Valley	NA	Eared grebe	1 (1-0-0)	F, R	
2/14/2003	Boat	Gerle Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey. Reservoir is frozen upstream of log boom
2/14/2003	Boat	Union Valley	NA	None	0 (0-0-0)	NA	
2/14/2003	Boat	Ice House	NA	None	0 (0-0-0)	NA	
2/28/2003	Boat	Union Valley	NA	Common merganser	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle prey surveys
2/28/2003	Boat	Union Valley	NA	Bufflehead	6 (0-0-6)	F, R	Reported by Mike Smith during bald eagle prey surveys
2/28/2003	Boat	Union Valley	NA	Canada goose	6 (0-0-6)	F, R	Reported by Mike Smith during bald eagle prey surveys
2/28/2003	Boat	Union Valley	NA	Tundra swan	5 (0-0-5)	F, R	Reported by Mike Smith during bald eagle prey surveys
2/28/2003	Boat	Union Valley	NA	Eared grebe	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Common merganser	5 (0-0-5)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Bufflehead	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Canada goose	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle prey surveys

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Survey Date	Survey Method	Reservoir	Location	Species	Number (Adults-YOY-Undetermined)	Activity B = Breeding F = Feeding R = Resting	Comments
3/6/2003	Boat	Union Valley	NA	Eared grebe	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Cinnamon teal	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Common goldeneye	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Western grebe	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/20/2003	Boat	Union Valley	NA	Common merganser	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/20/2003	Boat	Union Valley	NA	Bufflehead	5 (0-0-5)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/20/2003	Boat	Union Valley	NA	Canada goose	4 (0-0-4)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/20/2003	Boat	Union Valley	NA	Mallard	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/20/2003	Boat	Union Valley	NA	Pied-billed grebe	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/26/2003	Car - Foot	Gerle Creek	NA	Canada goose	5 (5-0-0)	F, R	
3/26/2003	Car - Foot	Gerle Creek	NA	Bufflehead	4 (4-0-0)	F, R	3 males and 1 female in courtship flight
3/26/2003	Car - Foot	Gerle Creek	NA	Common merganser	2 (2-0-0)	F, R	2 females
3/26/2003	Car - Foot	Gerle Creek	NA	Common goldeneye	3 (3-0-0)	F, R	3 females
3/26/2003	Car - Foot	Union Valley	Sunset Beach	Bufflehead	2 (2-0-0)	F, R	1 male and 1 female paired
3/27/2003	Boat	Union Valley	Robbs Peak Cove	Canada goose	5 (5-0-0)	F, R	2 pairs and a single. Showing aggression among the pairs.
3/27/2003	Boat	Union Valley	NA	Bufflehead	2 (2-0-0)	F, R	Mated pair
3/27/2003	Boat	Union Valley	NA	Mallard	13 (13-0-0)	Flying	Flying low over UVR
4/8/2003	Car - Foot	Gerle Creek	North End	Canada goose	8 (8-0-0)	F, R	
4/8/2003	Car - Foot	Gerle Creek	North End	Bufflehead	20 (20-0-0)	F, R	About equal nos. of each sex and some mated pairs
4/8/2003	Car - Foot	Loon Lake	NA	Common merganser	2 (2-0-0)	F, R	Reservoir is filling
4/8/2003	Car - Foot	Loon Lake	NA	Bufflehead	3 (3-0-0)	F, R	
4/8/2003	Car - Foot	Ice House	NA	Canada goose	1 (1-0-0)	F, R	Observed from boat ramp
4/8/2003	Car - Foot	Ice House	NA	Mallard	1 (1-0-0)	F, R	1 male observed from boat ramp
4/8/2003	Car - Foot	Ice House	NA	Common merganser	2 (2-0-0)	F, R	Observed from boat ramp
4/9/2003	Boat	Union Valley	North Coves	Canada goose	22 (22-0-0)	F, R	In coves feeding on new green vegetation growing in uplands
4/9/2003	Boat	Union Valley	NA	Bufflehead	13 (13-0-0)	F, R	Scattered across reservoir
4/9/2003	Boat	Union Valley	NA	Mallard	36 (36-0-0)	F, R	Scattered across reservoir, many pairs and a flock of 27 seen flying
4/9/2003	Boat	Union Valley	Jones Fork	Lesser scaup	1 (1-0-0)	F, R	In Jones Fork arm
4/9/2003	Boat	Union Valley	NA	Common merganser	8 (8-0-0)	F, R	Scattered across reservoir
4/9/2003	Boat	Union Valley	South shore	Pied-billed grebe	2 (2-0-0)	F, R	1 near burn and 1 near Sunset Beach
4/9/2003	Boat	Union Valley	NA	Eared grebe	3 (3-0-0)	F, R	All in non-breeding plumage
4/9/2003	Boat	Union Valley	NA	Common loon	1 (1-0-0)	F, R	Reported by Mike Smith during bald eagle surveys
4/22/2003	Car - Foot	Gerle Creek	NA	Bufflehead	7 (7-0-0)	F, R	3 males, 4 females
4/22/2003	Car - Foot	Gerle Creek	NA	Canada goose	3 (0-0-3)	F, R	Heard, not seen
4/22/2003	Car - Foot	Wood Duck Pond	NA	Mallard	6 (6-0-0)	F, R	Small pond next to access road to Gerle Creek Dam
4/22/2003	Car - Foot	Wood Duck Pond	NA	Wood duck	2 (2-0-0)	F, R	Male and female pair.
4/25/2003	Boat	Union Valley	NA	Common merganser	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle surveys
4/25/2003	Boat	Union Valley	NA	Bufflehead	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle surveys
4/25/2003	Boat	Union Valley	NA	Canada goose	4 (0-0-4)	F, R	Reported by Mike Smith during bald eagle surveys
4/25/2003	Boat	Union Valley	NA	Mallard	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle surveys
4/25/2003	Boat	Union Valley	NA	Common loon	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle surveys
4/25/2003	Boat	Union Valley	NA	Am. white pelican	6 (0-0-6)	F, R	Reported by Mike Smith during bald eagle surveys
5/6/2003	Boat	Union Valley	Camino Cove	Canada goose	62 (62-0-0)	F, R	Mostly pairs but some singles, feeding in meadows around Camino Cove
5/6/2003	Boat	Union Valley	Camino Cove	Bufflehead	6 (6-0-0)	F, R	4 males, 2 females at Camino cove and then near Jones Fk PH
5/6/2003	Boat	Union Valley	Camino Cove	Mallard	23 (23-0-0)	F, R	Mostly intermixed with geese around Camino Cove

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5/6/2003	Boat	Union Valley	NA	Common merganser	4 (4-0-0)	F, R	Scattered across reservoir
5/6/2003	Boat	Union Valley	Camino Cove	Blue-winged teal	2 (2-0-0)	F, R	Possible pair but not confirmed
5/7/2003	Car - Foot	Wood Duck Pond	NA	Wood duck	2 (2-0-0)	F, R	Male and female pair.
5/7/2003	Car - Foot	Wood Duck Pond	NA	Bufflehead	1 (1-0-0)	F, R	1 male
5/7/2003	Car - Foot	Gerle Canal	NA	Canada goose	2 (2-0-0)	F, R	Pair
5/7/2003	Car - Foot	Gerle Creek	NA	Bufflehead	4 (4-0-0)	F, R	2 mated pairs
5/7/2003	Car - Foot	Loon Lake	Northwest area	Common loon	1 (1-0-0)	F, R	
5/7/2003	Car - Foot	Loon Lake	NA	Common merganser	3 (3-0-0)	F, R	
5/7/2003	Car - Foot	Loon Lake	NA	Canada goose	2 (2-0-0)	F, R	
5/7/2003	Car - Foot	Ice House	NA	Common loon	1 (1-0-0)	F, R	Possibly same loon seen at Loon Lake in morning
5/7/2003	Car - Foot	Ice House	NA	Canada goose	2 (2-0-0)	F, R	
5/9/2003	Car - Foot	Union Valley	NA	Am. white pelican	8 (8-0-0)	F, R	Reported by Paul Andreano
5/20/2003	Car - Foot	Loon Lake	Pleasant Area	Canada goose	10 (10-0-0)	F, R	Feeding in shallow wetlands/uplands, mostly snow-covered. Some open water
5/20/2003	Car - Foot	Loon Lake	NA	Common merganser	10 (10-0-0)	F, R	5 males, 5 females
5/20/2003	Car - Foot	Loon Lake	NA	Mallard	2 (2-0-0)	F, R	Mated pair
5/20/2003	Car - Foot	Loon Lake	NA	Bufflehead	9 (9-0-0)	F, R	4 males, 5 females
5/21/2003	Car - Foot	Loon Lake	NA	Canada goose	2 (2-0-0)	F, R	
5/21/2003	Car - Foot	Loon Lake	NA	Common merganser	2 (2-0-0)	F, R	
5/21/2003	Car - Foot	Loon Lake	NA	Bufflehead	4 (4-0-0)	F, R	
5/21/2003	Car - Foot	Loon Lake	NA	Mallard	2 (2-0-0)	F, R	
5/21/2003	Car - Foot	Wood Duck Pond	NA	Wood duck	2 (2-0-0)	F, R	Mated pair
5/21/2003	Car - Foot	Gerle Creek	NA	Bufflehead	4 (4-0-0)	F, R	2 pairs with males in post-breeding plumage
5/21/2003	Car - Foot	Gerle Creek	NA	Canada goose	4 (4-0-0)	F, R	2 pair
5/21/2003	Boat	Union Valley	NA	Common merganser	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle surveys
5/21/2003	Boat	Union Valley	NA	Common loon	2 (2-0-0)	F, R	Reported by Mike Smith during bald eagle surveys
6/3/2003	Car - Foot	Bufflehead Pond	NA	Bufflehead	2 (2-0-0)	F, R	2 males
6/3/2003	Car - Foot	Wood Duck Pond	NA	None	0 (0-0-0)	NA	No ducks observed
6/3/2003	Car - Foot	Gerle Creek	NA	Bufflehead	1 (1-0-0)	F, R	1 male
6/3/2003	Car - Foot	Gerle Creek	NA	Common merganser	1 (1-0-0)	F, R	1 female
6/5/2003	Car - Foot	Junction	NA	Wood duck	1 (1-0-0)	F, R	1 male in non-breeding plumage
6/17/2003	Boat	Union Valley	Various	Mallard	46 (21-25-0)	B, F, R	46 Total (Male/female pair in Jones Fork arm; F. with 9 YOY in Camino Cove; F. with 7 YOY in SPI Cove; F. with 9 YOY in Granlee's Cove; Flock of 16 in Granlee's Cove that flew off on approach.
6/17/2003	Boat	Union Valley	Various	Canada goose	303 (303-0-0)	F, R	303 Total (44 ad. In cove west of Camino Cove; 83 in Camino cove; 87 in SPI Cove; 14 in cove west of Wolf Ck CG; 57 in Granlee's Cove; 18 at Sunset Beach)
6/17/2003	Boat	Union Valley	Various	Common merganser	2 (2-0-0)	F, R	1 female on shore in SPI Cove; 1 female in Granlee's Cove
6/17/2003	Boat	Union Valley	SPI Cove	Cinnamon teal	2 (2-0-0)	F, R	Mated pair
6/17/2003	Boat	Ice House	NA	Common merganser	11 (11-0-0)	F, R	
6/17/2003	Boat	Ice House	NA	Mallard	3 (3-0-0)	F, R	2 males in eclipse with 1 female - all capable of flight still
6/17/2003	Boat	Ice House	NA	Canada goose	36 (31-5-0)	B, F, R	31 adults in cove near Ice House CG. 1 pair with 5 goslings about 3 weeks old
6/19/2003	Boat	Loon Lake	Various	Common merganser	11 (11-0-0)	F, R	5 males on shore near PH; 1 female on large island near PH; 2 males on north shore; 1 male on east shore; 1 female in NE arm; 1 male on north shore
6/19/2003	Boat	Loon Lake	Various	Canada goose	43 (42-1-0)	B, F, R	16 adults on NW shore; 11 in NE arm; 15 in Pleasant area with possibly 1 gosling but birds moved into forest and were wary without vocalizing.
6/19/2003	Car - Foot	Bufflehead Pond	NA	None	0 (0-0-0)	NA	No waterfowl observed

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6/19/2003	Car - Foot	Wood Duck Pond	NA	None	0 (0-0-0)	NA	No waterfowl observed
6/19/2003	Car - Foot	Gerle Creek	Near Platform	Canada goose	4 (4-0-0)	F, R	4 adults near humans
6/19/2003	Canoe	Slab Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed
7/17/2003	Car - Foot	Gerle Canal	NA	Common merganser	7 (1-6-0)	B, F, R	1 female with 6 YOY in canal about 300 yards north of Robbs Peak Res.
7/28/2003	Boat	Union Valley	Various	Canada goose	82 (82-0-0)	F, R	13 adults in Camino Cove west; 30 adults in Camino Cove; 8 adults in Camino Cove East; 9 adults in SPI Cove; 2 adults near new CG; 8 adults near SMUDEA; 2 adults near Granlee's Point; 5 adults at Sunset Beach; 5 at Sunset CG.
7/28/2003	Boat	Union Valley	Various	Common merganser	16 (6-10-0)	B, F, R	1 adult in upper Jones Fork arm; 1 female with 4 YOY in Camino Cove west; 1 female with 4 (nearly full-grown YOY) in Camino Cove; 1 female with 2 YOY in east; male/female pair near Yellowjacket CG
7/28/2003	Boat	Union Valley	Various	Mallard	38 (12-26-0)	B, F, R	1 male in eclipse with a female in Camino Cove west; 1 female with 2 YOY in Camino Cove West; 1 female in Camino Cove 11 in Camino Cove; 1 female with 5 YOY in Camino Cove; 1 female with 6 YOY in Camino Cove; 1 female with 2 YOY in SPI Cove; 5 adults in Granlee's Cove.
7/28/2003	Boat	Ice House	Various	Canada goose	24 (20-4-0)	B, F, R	18 adults with/ at least 4 YOY in Ice House CG Cove; 2 adults in upper arm
7/28/2003	Boat	Ice House	Various	Common merganser	19 (4-15-0)	B, F, R	F. with 12 YOY in upper arm - brood scattered when large accipiter made a pass over them; F. with 3 YOY in upper arm; 2 F. on north shore
7/29/2003	Boat	Loon Lake	Various	Common merganser	52 (21-31-0)	B, F, R	F. with 15 YOY near PH; 2 F. near island in middle of reservoir; 11 in Pleasant arm; F. with 16 YOY on south shore; 6 ad. On north shore.
7/29/2003	Boat	Loon Lake	Various	Canada goose	26 (26-0-0)	F, R	3 on middle island; 14 in NW arm of Pleasant area; 3 in upper Pleasant; 6 in NE part of Pleasant meadow
		Gerle Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed
10/7/2003	Boat	Union Valley	Camino Cove	Canada goose	40 (40-0-0)	F, R	40 geese; 1 bird with black on white neck collar #2/38
10/7/2003	Boat	Union Valley	Various	Common merganser	8 (8-0-0)	F, R	
10/7/2003	Boat	Union Valley	Various	Mallard	7 (7-0-0)	F, R	
10/7/2003	Boat	Union Valley	Various	Bufflehead	2 (2-0-0)	F, R	
10/7/2003	Boat	Union Valley	Various	Pied-billed grebe	1 (1-0-0)	F, R	
10/7/2003	Boat	Union Valley	Various	Eared grebe	1 (1-0-0)	F, R	
11/25/2003	Car - Foot	Union Valley	Dam	Common merganser	3 (3-0-0)	F, R	
11/26/2003	Boat	Union Valley	NA	Common merganser	16 (0-0-16)	F, R	Reported by Mike Smith during bald eagle surveys
11/26/2003	Boat	Union Valley	NA	Bufflehead	7 (0-0-7)	F, R	Reported by Mike Smith during bald eagle surveys
11/26/2003	Boat	Union Valley	NA	Common goldeneye	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle surveys

Appendix B-2. Results of waterfowl surveys at Upper American River Project reservoirs, May 14, 2002 to November 26, 2003 (sorted by location).							
Survey Date	Survey Method	General Location	Specific Location	Species	Number (Adults-YOY-Undetermined)	Activity B = Breeding F = Feeding R = Resting	Comments
5/29/2002	Car - Foot	Bufflehead Pond	NA	Bufflehead	2 (2-0-0)	F, R	2 males seen on small pond near turn off to Loon Lake CG
6/11/2002	Car - Foot	Bufflehead Pond	NA	Bufflehead	1 (1-0-0)	F, R	1 adult male.
6/18/2002	Car - Foot	Bufflehead Pond	NA	Bufflehead	2 (2-0-0)	F, R	2 females
6/18/2002	Car - Foot	Bufflehead Pond	NA	Mallard	1 (1-0-0)	F, R	1 female
7/16/2002	Car - Foot	Bufflehead Pond	NA	Bufflehead	2 (2-0-0)	F, R	2 females
9/9/2002	Car - Foot	Bufflehead Pond	NA	Mallard	2 (2-0-0)	F, R	1 male in eclipse plumage and 1 female. Pond level has dropped about 1 ft.
9/16/2002	Car - Foot	Bufflehead Pond	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/23/2002	Car - Foot	Bufflehead Pond	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/30/2002	Car - Foot	Bufflehead Pond	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
6/3/2003	Car - Foot	Bufflehead Pond	NA	Bufflehead	2 (2-0-0)	F, R	2 males
6/19/2003	Car - Foot	Bufflehead Pond	NA	None	0 (0-0-0)	NA	No waterfowl observed
5/14/2002	Car	Gerle Canal	NA	Canada goose	1 (1-0-0)	F, R	1 adult swimmin in canal. Extensive goose excrement on upland.
9/16/2002	Car - Foot	Gerle Canal	NA	Common merganser	6 (0-0-6)	F, R	6 mergansers swimming in Gerle Creek Canal
5/7/2003	Car - Foot	Gerle Canal	NA	Canada goose	2 (2-0-0)	F, R	Pair
7/17/2003	Car - Foot	Gerle Canal	NA	Common merganser	7 (1-6-0)	B, F, R	1 female with 6 YOY in canal about 300 yards north of Robbs Peak Res.
5/14/2002	Car - Foot	Gerle Creek	NA	Bufflehead	2 (2-0-0)	F, R	
5/14/2002	Car - Foot	Gerle Creek	NA	Common merganser	3 (3-0-0)	F, R	
5/14/2002	Car - Foot	Gerle Creek	NA	Ring-necked Duck	2 (2-0-0)	F, R	
5/14/2002	Car - Foot	Gerle Creek	NA	Canada goose	2 (2-1-0)	B, F, R	2 adults with 1 gosling. Low brood size possibly due to predation.
6/10/2002	Car - Foot	Gerle Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
6/11/2002	Car - Foot	Gerle Creek	NA	Ruddy Duck	2 (2-0-0)	F, R	1 adult male with 1 adult female
6/19/2002	Car - Foot	Gerle Creek	NA	Canada goose	3 (2-1-0)	B, F, R	2 adults with 1 gosling. See observation from 5/14/2002
6/19/2002	Car - Foot	Gerle Creek	NA	Common merganser	10 (1-9-0)	B, F, R	1 female with 9 chicks
9/23/2002	Car - Foot	Gerle Creek	NA	Common merganser	2 (2-0-0)	F, R	
10/7/2002	Car - Foot	Gerle Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
10/14/2002	Car - Foot	Gerle Creek	NA	Ruddy Duck	1 (1-0-0)	F, R	1 female
10/21/2002	Car - Foot	Gerle Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
10/28/2002	Car - Foot	Gerle Creek	NA	Bufflehead	6 (6-0-0)	F, R	1 male, 5 females
11/4/2002	Car - Foot	Gerle Creek	NA	Bufflehead	4 (4-0-0)	F, R	2 males with 2 females
11/11/2002	Car - Foot	Gerle Creek	NA	Common merganser	2 (2-0-0)	F, R	2 adult males
11/18/2002	Car - Foot	Gerle Creek	NA	Common merganser	1 (1-0-0)	F, R	1 female perched on log boom then flew toward north end of reservoir
11/18/2002	Car - Foot	Gerle Creek	NA	Bufflehead	3 (3-0-0)	F, R	3 females near intake structure
12/30/2002	Car - Foot	Gerle Creek	NA	Common merganser	1 (1-0-0)	F, R	1 male. Reservoir at low level but not frozen
2/14/2003	Boat	Gerle Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey. Reservoir is frozen upstream of log boom
3/26/2003	Car - Foot	Gerle Creek	NA	Canada goose	5 (5-0-0)	F, R	
3/26/2003	Car - Foot	Gerle Creek	NA	Bufflehead	4 (4-0-0)	F, R	3 males and 1 female in courtship flight
3/26/2003	Car - Foot	Gerle Creek	NA	Common merganser	2 (2-0-0)	F, R	2 females
3/26/2003	Car - Foot	Gerle Creek	NA	Common goldeneye	3 (3-0-0)	F, R	3 females
4/8/2003	Car - Foot	Gerle Creek	North End	Canada goose	8 (8-0-0)	F, R	
4/8/2003	Car - Foot	Gerle Creek	North End	Bufflehead	20 (20-0-0)	F, R	About equal nos. of each sex and some mated pairs
4/22/2003	Car - Foot	Gerle Creek	NA	Bufflehead	7 (7-0-0)	F, R	3 males, 4 females
4/22/2003	Car - Foot	Gerle Creek	NA	Canada goose	3 (0-0-3)	F, R	Heard, not seen
5/7/2003	Car - Foot	Gerle Creek	NA	Bufflehead	4 (4-0-0)	F, R	2 mated pairs
5/21/2003	Car - Foot	Gerle Creek	NA	Bufflehead	4 (4-0-0)	F, R	2 pairs with males in post-breeding plumage

Appendix B-2. Results of waterfowl surveys at Upper American River Project reservoirs, May 14, 2002 to November 26, 2003 (sorted by location).							
Survey Date	Survey Method	General Location	Specific Location	Species	Number (Adults-YOY-Undetermined)	Activity B = Breeding F = Feeding R = Resting	Comments
5/21/2003	Car - Foot	Gerle Creek	NA	Canada goose	4 (4-0-0)	F, R	2 pair
6/3/2003	Car - Foot	Gerle Creek	NA	Bufflehead	1 (1-0-0)	F, R	1 male
6/3/2003	Car - Foot	Gerle Creek	NA	Common merganser	1 (1-0-0)	F, R	1 female
6/19/2003	Car - Foot	Gerle Creek	Near Platform	Canada goose	4 (4-0-0)	F, R	4 adults near humans
		Gerle Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed
6/13/2002	Car - Foot	Ice House	NA	Bufflehead	3 (3-0-0)	F, R	1 male, 2 females
6/13/2002	Car - Foot	Ice House	NA	Common merganser	2 (2-0-0)	F, R	2 females near dam
9/16/2002	Car - Foot	Ice House	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/23/2002	Car - Foot	Ice House	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/30/2002	Car - Foot	Ice House	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
11/18/2002	Car - Foot	Ice House	NA	Common merganser	4 (4-0-0)	F, R	4 males
12/30/2002	Car - Foot	Ice House	NA	None	0 (0-0-0)	NA	No waterfowl observed from boat ramp and dam
2/4/2003	Boat	Ice House	NA	Bufflehead	6 (0-0-6)	F, R	
2/4/2003	Boat	Ice House	NA	Common merganser	1 (1-0-0)	F, R	1 male
2/4/2003	Boat	Ice House	NA	Common goldeneye	1 (1-0-0)	F, R	1 male
2/14/2003	Boat	Ice House	NA	None	0 (0-0-0)	NA	
4/8/2003	Car - Foot	Ice House	NA	Canada goose	1 (1-0-0)	F, R	Observed from boat ramp
4/8/2003	Car - Foot	Ice House	NA	Mallard	1 (1-0-0)	F, R	1 male observed from boat ramp
4/8/2003	Car - Foot	Ice House	NA	Common merganser	2 (2-0-0)	F, R	Observed from boat ramp
5/7/2003	Car - Foot	Ice House	NA	Common loon	1 (1-0-0)	F, R	Possibly same loon seen at Loon Lake in morning
5/7/2003	Car - Foot	Ice House	NA	Canada goose	2 (2-0-0)	F, R	
6/17/2003	Boat	Ice House	NA	Common merganser	11 (11-0-0)	F, R	
6/17/2003	Boat	Ice House	NA	Mallard	3 (3-0-0)	F, R	2 males in eclipse with 1 female - all capable of flight still
6/17/2003	Boat	Ice House	NA	Canada goose	36 (31-5-0)	B, F, R	31 adults in cove near Ice House CG. 1 pair with 5 goslings about 3 weeks old
7/28/2003	Boat	Ice House	Various	Canada goose	24 (20-4-0)	B, F, R	18 adults with/ at least 4 YOY in Ice House CG Cove; 2 adults in upper arm
7/28/2003	Boat	Ice House	Various	Common merganser	19 (4-15-0)	B, F, R	F. with 12 YOY in upper arm - brood scattered when large accipiter made a pass over them; F. with 3 YOY in upper arm; 2 F. on north shore
6/5/2003	Car - Foot	Junction	NA	Wood duck	1 (1-0-0)	F, R	1 male in non-breeding plumage
9/16/2002	Car - Foot	Loon Lake	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/23/2002	Car - Foot	Loon Lake	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/30/2002	Car - Foot	Loon Lake	NA	Eared grebe	1 (1-0-0)	F, R	
10/1/2002	Car - Foot	Loon Lake	NA	Common merganser	4 (0-0-4)	F, R	
10/28/2002	Car - Foot	Loon Lake	NA	Common merganser	2 (2-0-0)	F, R	1 male in early breeding plumage with 1 female
11/4/2002	Car - Foot	Loon Lake	NA	Common merganser	2 (2-0-0)	F, R	1 male and 1 female paired
11/11/2002	Car - Foot	Loon Lake	NA	Common merganser	2 (0-0-2)	F, R	
11/18/2002	Car - Foot	Loon Lake	NA	Unidentified	12 (0-0-12)	F, R	12 ducks observed but too far away to tell species
12/30/2002	Car - Foot	Loon Lake	NA	None	0 (0-0-0)	NA	No waterfowl observed. Reservoir is drawn down and mostly frozen over.
4/8/2003	Car - Foot	Loon Lake	NA	Common merganser	2 (2-0-0)	F, R	Reservoir is filling
4/8/2003	Car - Foot	Loon Lake	NA	Bufflehead	3 (3-0-0)	F, R	
5/7/2003	Car - Foot	Loon Lake	Northwest area	Common loon	1 (1-0-0)	F, R	
5/7/2003	Car - Foot	Loon Lake	NA	Common merganser	3 (3-0-0)	F, R	
5/7/2003	Car - Foot	Loon Lake	NA	Canada goose	2 (2-0-0)	F, R	
5/20/2003	Car - Foot	Loon Lake	Pleasant Area	Canada goose	10 (10-0-0)	F, R	Feeding in shallow wetlands/uplands, mostly snow-covered. Some open water

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5/20/2003	Car - Foot	Loon Lake	NA	Common merganser	10 (10-0-0)	F, R	5 males, 5 females
5/20/2003	Car - Foot	Loon Lake	NA	Mallard	2 (2-0-0)	F, R	Mated pair
5/20/2003	Car - Foot	Loon Lake	NA	Bufflehead	9 (9-0-0)	F, R	4 males, 5 females
5/21/2003	Car - Foot	Loon Lake	NA	Canada goose	2 (2-0-0)	F, R	
5/21/2003	Car - Foot	Loon Lake	NA	Common merganser	2 (2-0-0)	F, R	
5/21/2003	Car - Foot	Loon Lake	NA	Bufflehead	4 (4-0-0)	F, R	
5/21/2003	Car - Foot	Loon Lake	NA	Mallard	2 (2-0-0)	F, R	
6/19/2003	Boat	Loon Lake	Various	Common merganser	11 (11-0-0)	F, R	5 males on shore near PH; 1 female on large island near PH; 2 males on north shore; 1 male on east shore; 1 female in NE arm; 1 male on north shore
6/19/2003	Boat	Loon Lake	Various	Canada goose	43 (42-1-0)	B, F, R	16 adults on NW shore; 11 in NE arm; 15 in Pleasant area with possibly 1 gosling but birds moved into forest and were wary without vocalizing.
7/29/2003	Boat	Loon Lake	Various	Common merganser	52 (21-31-0)	B, F, R	F. with 15 YOY near PH; 2 F. near island in middle of reservoir; 11 in Pleasant arm; F. with 16 YOY on south shore; 6 ad. On north shore.
7/29/2003	Boat	Loon Lake	Various	Canada goose	26 (26-0-0)	F, R	3 on middle island; 14 in NW arm of Pleasant area; 3 in upper Pleasant; 6 in NE part of Pleasant meadow
6/26/2002	Foot	Rubicon	NA	Common merganser	3 (0-0-3)	F, R	
6/19/2003	Canoe	Slab Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed
5/29/2002	Helicopter	Union Valley	Camino Cove	Canada goose	60 (0-0-60)	F, R	Approximately 60 geese seen from air during flight over UVR.
6/11/2002	Car - Foot	Union Valley	Camino Cove	Canada goose	110 (0-0-110)	F, R	Feeding in shallow water.
6/11/2002	Car - Foot	Union Valley	Camino Cove	Mallard	3 (3-0-0)	F, R	Birds in post-breeding moult (eclipse)
6/11/2002	Car - Foot	Union Valley	Camino Cove	Common merganser	10 (1-9-0)	B, F, R	1 adult female with 9 chicks
6/12/2002	Car - Foot	Union Valley	Granlee's Cove	Canada goose	65 (0-0-65)	F, R	
6/17/2002	Boat	Union Valley	NA	Canada goose	320 (319-1-0)	B, F, R	Only 1 gosling observed among 319 adult geese
6/17/2002	Boat	Union Valley	NA	Mallard	29 (11-18-0)	B, F, R	7 adults and 18 YOY
6/17/2002	Boat	Union Valley	Camino Cove	Blue-winged teal	2 (2-0-0)	F, R	1 male and 1 female
6/17/2002	Boat	Union Valley	Granlee's Cove	Common merganser	9 (1-8-0)	B, F, R	1 adult female with 8 chicks. Could be brood from 6/11/02 at Camino Cove
7/9/2002	Foot	Union Valley	NA	Canada goose	65 (65-0-0)	F, R	Geese feeding in meadow just east of Camino Cove CG
9/1/2002	Car - Foot	Union Valley	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/16/2002	Car - Foot	Union Valley	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/23/2002	Car - Foot	Union Valley	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
10/1/2002	Car - Foot	Union Valley	NA	Common merganser	4 (0-0-4)	F, R	
10/7/2002	Car - Foot	Union Valley	Camino Cove	Mallard	1 (1-0-0)	F, R	
12/30/2002	Car - Foot	Union Valley	NA	Common merganser	1 (1-0-0)	F, R	1 female observed from West Point area and dam.
12/30/2002	Car - Foot	Union Valley	NA	Common loon	1 (1-0-0)	F, R	Observed from dam. Mike Smith had also reported a loon from area.
1/15/2003	Boat	Union Valley	NA	Common merganser	5 (0-0-5)	F, R	Reported by Mike Smith during bald eagle prey surveys
1/15/2003	Boat	Union Valley	NA	Bufflehead	5 (0-0-0)	F, R	Reported by Mike Smith during bald eagle prey surveys
1/15/2003	Boat	Union Valley	NA	Eared grebe	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle prey surveys
1/24/2003	Boat	Union Valley	NA	Common merganser	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle prey surveys
1/24/2003	Boat	Union Valley	NA	Bufflehead	7 (0-0-7)	F, R	Reported by Mike Smith during bald eagle prey surveys
1/24/2003	Boat	Union Valley	NA	Tundra swan	4 (0-0-4)	F, R	Reported by Mike Smith during bald eagle prey surveys
1/24/2003	Boat	Union Valley	NA	Mallard	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle prey surveys
2/4/2003	Boat	Union Valley	Jones Fork	Bufflehead	5 (5-0-0)	F, R	4 males, 1 fem. in Jones Fk arm and later near Camino Cove in courtship flight
2/4/2003	Boat	Union Valley	NA	Common merganser	6 (6-0-0)	F, R	6 females at various locations incl. Fashoda Point, Camino Cove, & Jones Fk

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2/4/2003	Boat	Union Valley	NA	Tundra swan	3 (0-0-3)	Flying	Flew over UVR from east-west then off toward northeast.
2/6/2003	Boat	Union Valley	NA	Bufflehead	3 (0-0-3)	F, R	
2/6/2003	Boat	Union Valley	NA	Common merganser	3 (0-0-3)	F, R	
2/6/2003	Boat	Union Valley	NA	Eared grebe	1 (1-0-0)	F, R	
2/14/2003	Boat	Union Valley	NA	None	0 (0-0-0)	NA	
2/28/2003	Boat	Union Valley	NA	Common merganser	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle prey surveys
2/28/2003	Boat	Union Valley	NA	Bufflehead	6 (0-0-6)	F, R	Reported by Mike Smith during bald eagle prey surveys
2/28/2003	Boat	Union Valley	NA	Canada goose	6 (0-0-6)	F, R	Reported by Mike Smith during bald eagle prey surveys
2/28/2003	Boat	Union Valley	NA	Tundra swan	5 (0-0-5)	F, R	Reported by Mike Smith during bald eagle prey surveys
2/28/2003	Boat	Union Valley	NA	Eared grebe	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Common merganser	5 (0-0-5)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Bufflehead	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Canada goose	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Eared grebe	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Cinnamon teal	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Common goldeneye	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Western grebe	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/20/2003	Boat	Union Valley	NA	Common merganser	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/20/2003	Boat	Union Valley	NA	Bufflehead	5 (0-0-5)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/20/2003	Boat	Union Valley	NA	Canada goose	4 (0-0-4)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/20/2003	Boat	Union Valley	NA	Mallard	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/20/2003	Boat	Union Valley	NA	Pied-billed grebe	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/26/2003	Car - Foot	Union Valley	Sunset Beach	Bufflehead	2 (2-0-0)	F, R	1 male and 1 female paired
3/27/2003	Boat	Union Valley	Robbs Peak Cove	Canada goose	5 (5-0-0)	F, R	2 pairs and a single. Showing aggression among the pairs.
3/27/2003	Boat	Union Valley	NA	Bufflehead	2 (2-0-0)	F, R	Mated pair
3/27/2003	Boat	Union Valley	NA	Mallard	13 (13-0-0)	Flying	Flying low over UVR
4/9/2003	Boat	Union Valley	North Coves	Canada goose	22 (22-0-0)	F, R	In coves feeding on new green vegetation growing in uplands
4/9/2003	Boat	Union Valley	NA	Bufflehead	13 (13-0-0)	F, R	Scattered across reservoir
4/9/2003	Boat	Union Valley	NA	Mallard	36 (36-0-0)	F, R	Scattered across reservoir, many pairs and a flock of 27 seen flying
4/9/2003	Boat	Union Valley	Jones Fork	Lesser scaup	1 (1-0-0)	F, R	In Jones Fork arm
4/9/2003	Boat	Union Valley	NA	Common merganser	8 (8-0-0)	F, R	Scattered across reservoir
4/9/2003	Boat	Union Valley	South shore	Pied-billed grebe	2 (2-0-0)	F, R	1 near burn and 1 near Sunset Beach
4/9/2003	Boat	Union Valley	NA	Eared grebe	3 (3-0-0)	F, R	All in non-breeding plumage
4/9/2003	Boat	Union Valley	NA	Common loon	1 (1-0-0)	F, R	Reported by Mike Smith during bald eagle surveys
4/25/2003	Boat	Union Valley	NA	Common merganser	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle surveys
4/25/2003	Boat	Union Valley	NA	Bufflehead	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle surveys
4/25/2003	Boat	Union Valley	NA	Canada goose	4 (0-0-4)	F, R	Reported by Mike Smith during bald eagle surveys
4/25/2003	Boat	Union Valley	NA	Mallard	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle surveys
4/25/2003	Boat	Union Valley	NA	Common loon	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle surveys
4/25/2003	Boat	Union Valley	NA	Am. white pelican	6 (0-0-6)	F, R	Reported by Mike Smith during bald eagle surveys
5/6/2003	Boat	Union Valley	Camino Cove	Canada goose	62 (62-0-0)	F, R	Mostly pairs but some singles, feeding in meadows around Camino Cove
5/6/2003	Boat	Union Valley	Camino Cove	Bufflehead	6 (6-0-0)	F, R	4 males, 2 females at Camino cove and then near Jones Fk PH
5/6/2003	Boat	Union Valley	Camino Cove	Mallard	23 (23-0-0)	F, R	Mostly intermixed with geese around Camino Cove
5/6/2003	Boat	Union Valley	NA	Common merganser	4 (4-0-0)	F, R	Scattered across reservoir
5/6/2003	Boat	Union Valley	Camino Cove	Blue-winged teal	2 (2-0-0)	F, R	Possible pair but not confirmed

Appendix B-2. Results of waterfowl surveys at Upper American River Project reservoirs, May 14, 2002 to November 26, 2003 (sorted by location).							
Survey Date	Survey Method	General Location	Specific Location	Species	Number (Adults-YOY-Undetermined)	Activity B = Breeding F = Feeding R = Resting	Comments
5/9/2003	Car - Foot	Union Valley	NA	Am. white pelican	8 (8-0-0)	F, R	Reported by Paul Andreano
5/21/2003	Boat	Union Valley	NA	Common merganser	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle surveys
5/21/2003	Boat	Union Valley	NA	Common loon	2 (2-0-0)	F, R	Reported by Mike Smith during bald eagle surveys
6/17/2003	Boat	Union Valley	Various	Mallard	46 (21-25-0)	B, F, R	46 Total (Male/female pair in Jones Fork arm; F. with 9 YOY in Camino Cove; F. with 7 YOY in SPI Cove; F. with 9 YOY in Granlee's Cove; Flock of 16 in Granlee's Cove that flew off on approach.
6/17/2003	Boat	Union Valley	Various	Canada goose	303 (303-0-0)	F, R	303 Total (44 ad. In cove west of Camino Cove; 83 in Camino cove; 87 in SPI Cove; 14 in cove west of Wolf Ck CG; 57 in Granlee's Cove; 18 at Sunset Beach)
6/17/2003	Boat	Union Valley	Various	Common merganser	2 (2-0-0)	F, R	1 female on shore in SPI Cove; 1 female in Granlee's Cove
6/17/2003	Boat	Union Valley	SPI Cove	Cinnamon teal	2 (2-0-0)	F, R	Mated pair
7/28/2003	Boat	Union Valley	Various	Canada goose	82 (82-0-0)	F, R	13 adults in Camino Cove west; 30 adults in Camino Cove; 8 adults in Camino Cove East; 9 adults in SPI Cove; 2 adults near new CG; 8 adults near SMUDEA; 2 adults near Granlee's Point; 5 adults at Sunset Beach; 5 at Sunset CG.
7/28/2003	Boat	Union Valley	Various	Common merganser	16 (6-10-0)	B, F, R	1 adult in upper Jones Fork arm; 1 female with 4 YOY in Camino Cove west; 1 female with 4 (nearly full-grown YOY) in Camino Cove; 1 female with 2 YOY in east; male/female pair near Yellowjacket CG
7/28/2003	Boat	Union Valley	Various	Mallard	38 (12-26-0)	B, F, R	1 male in eclipse with a female in Camino Cove west; 1 female with 2 YOY in Camino Cove West; 1 female in Camino Cove 11 in Camino Cove; 1 female with 5 YOY in Camino Cove; 1 female with 6 YOY in Camino Cove; 1 female with 2 YOY in SPI Cove; 5 adults in Granlee's Cove.
10/7/2003	Boat	Union Valley	Camino Cove	Canada goose	40 (40-0-0)	F, R	40 geese; 1 bird with black on white neck collar #2/38
10/7/2003	Boat	Union Valley	Various	Common merganser	8 (8-0-0)	F, R	
10/7/2003	Boat	Union Valley	Various	Mallard	7 (7-0-0)	F, R	
10/7/2003	Boat	Union Valley	Various	Bufflehead	2 (2-0-0)	F, R	
10/7/2003	Boat	Union Valley	Various	Pied-billed grebe	1 (1-0-0)	F, R	
10/7/2003	Boat	Union Valley	Various	Eared grebe	1 (1-0-0)	F, R	
11/25/2003	Car - Foot	Union Valley	Dam	Common merganser	3 (3-0-0)	F, R	
11/26/2003	Boat	Union Valley	NA	Common merganser	16 (0-0-16)	F, R	Reported by Mike Smith during bald eagle surveys
11/26/2003	Boat	Union Valley	NA	Bufflehead	7 (0-0-7)	F, R	Reported by Mike Smith during bald eagle surveys
11/26/2003	Boat	Union Valley	NA	Common goldeneye	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle surveys
4/22/2003	Car - Foot	Wood Duck Pond	NA	Mallard	6 (6-0-0)	F, R	Small pond next to access road to Gerle Creek Dam
4/22/2003	Car - Foot	Wood Duck Pond	NA	Wood duck	2 (2-0-0)	F, R	Male and female pair.
5/7/2003	Car - Foot	Wood Duck Pond	NA	Wood duck	2 (2-0-0)	F, R	Male and female pair.
5/7/2003	Car - Foot	Wood Duck Pond	NA	Bufflehead	1 (1-0-0)	F, R	1 male
5/21/2003	Car - Foot	Wood Duck Pond	NA	Wood duck	2 (2-0-0)	F, R	Mated pair
6/3/2003	Car - Foot	Wood Duck Pond	NA	None	0 (0-0-0)	NA	No ducks observed
6/19/2003	Car - Foot	Wood Duck Pond	NA	None	0 (0-0-0)	NA	No waterfowl observed

Appendix B-3. Results of waterfowl surveys at Upper American River Project reservoirs, May 14, 2002 to November 26, 2003 (sorted by species).

Survey Date	Survey Method	Reservoir	Location	Species	Number (Adults-YOY-Undetermined)	Activity B = Breeding F = Feeding R = Resting	Comments
4/25/2003	Boat	Union Valley	NA	Am. white pelican	6 (0-0-6)	F, R	Reported by Mike Smith during bald eagle surveys
5/9/2003	Car - Foot	Union Valley	NA	Am. white pelican	8 (8-0-0)	F, R	Reported by Paul Andreano
6/17/2002	Boat	Union Valley	Camino Cove	Blue-winged teal	2 (2-0-0)	F, R	1 male and 1 female
5/6/2003	Boat	Union Valley	Camino Cove	Blue-winged teal	2 (2-0-0)	F, R	Possible pair but not confirmed
5/29/2002	Car - Foot	Bufflehead Pond	NA	Bufflehead	2 (2-0-0)	F, R	2 males seen on small pond near turn off to Loon Lake CG
6/11/2002	Car - Foot	Bufflehead Pond	NA	Bufflehead	1 (1-0-0)	F, R	1 adult male.
6/18/2002	Car - Foot	Bufflehead Pond	NA	Bufflehead	2 (2-0-0)	F, R	2 females
7/16/2002	Car - Foot	Bufflehead Pond	NA	Bufflehead	2 (2-0-0)	F, R	2 females
6/3/2003	Car - Foot	Bufflehead Pond	NA	Bufflehead	2 (2-0-0)	F, R	2 males
5/14/2002	Car - Foot	Gerle Creek	NA	Bufflehead	2 (2-0-0)	F, R	
10/28/2002	Car - Foot	Gerle Creek	NA	Bufflehead	6 (6-0-0)	F, R	1 male, 5 females
11/4/2002	Car - Foot	Gerle Creek	NA	Bufflehead	4 (4-0-0)	F, R	2 males with 2 females
11/18/2002	Car - Foot	Gerle Creek	NA	Bufflehead	3 (3-0-0)	F, R	3 females near intake structure
3/26/2003	Car - Foot	Gerle Creek	NA	Bufflehead	4 (4-0-0)	F, R	3 males and 1 female in courtship flight
4/8/2003	Car - Foot	Gerle Creek	North End	Bufflehead	20 (20-0-0)	F, R	About equal nos. of each sex and some mated pairs
4/22/2003	Car - Foot	Gerle Creek	NA	Bufflehead	7 (7-0-0)	F, R	3 males, 4 females
5/7/2003	Car - Foot	Gerle Creek	NA	Bufflehead	4 (4-0-0)	F, R	2 mated pairs
5/21/2003	Car - Foot	Gerle Creek	NA	Bufflehead	4 (4-0-0)	F, R	2 pairs with males in post-breeding plumage
6/3/2003	Car - Foot	Gerle Creek	NA	Bufflehead	1 (1-0-0)	F, R	1 male
6/13/2002	Car - Foot	Ice House	NA	Bufflehead	3 (3-0-0)	F, R	1 male, 2 females
2/4/2003	Boat	Ice House	NA	Bufflehead	6 (0-0-6)	F, R	
4/8/2003	Car - Foot	Loon Lake	NA	Bufflehead	3 (3-0-0)	F, R	
5/20/2003	Car - Foot	Loon Lake	NA	Bufflehead	9 (9-0-0)	F, R	4 males, 5 females
5/21/2003	Car - Foot	Loon Lake	NA	Bufflehead	4 (4-0-0)	F, R	
1/15/2003	Boat	Union Valley	NA	Bufflehead	5 (0-0-0)	F, R	Reported by Mike Smith during bald eagle prey surveys
1/24/2003	Boat	Union Valley	NA	Bufflehead	7 (0-0-7)	F, R	Reported by Mike Smith during bald eagle prey surveys
2/4/2003	Boat	Union Valley	Jones Fork	Bufflehead	5 (5-0-0)	F, R	4 males, 1 fem. in Jones Fk arm and later near Camino Cove in courtship flight
2/6/2003	Boat	Union Valley	NA	Bufflehead	3 (0-0-3)	F, R	
2/28/2003	Boat	Union Valley	NA	Bufflehead	6 (0-0-6)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Bufflehead	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/20/2003	Boat	Union Valley	NA	Bufflehead	5 (0-0-5)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/26/2003	Car - Foot	Union Valley	Sunset Beach	Bufflehead	2 (2-0-0)	F, R	1 male and 1 female paired
3/27/2003	Boat	Union Valley	NA	Bufflehead	2 (2-0-0)	F, R	Mated pair
4/9/2003	Boat	Union Valley	NA	Bufflehead	13 (13-0-0)	F, R	Scattered across reservoir
4/25/2003	Boat	Union Valley	NA	Bufflehead	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle surveys
5/6/2003	Boat	Union Valley	Camino Cove	Bufflehead	6 (6-0-0)	F, R	4 males, 2 females at Camino cove and then near Jones Fk PH
10/7/2003	Boat	Union Valley	Various	Bufflehead	2 (2-0-0)	F, R	
11/26/2003	Boat	Union Valley	NA	Bufflehead	7 (0-0-7)	F, R	Reported by Mike Smith during bald eagle surveys
5/7/2003	Car - Foot	Wood Duck Pond	NA	Bufflehead	1 (1-0-0)	F, R	1 male
5/14/2002	Car	Gerle Canal	NA	Canada goose	1 (1-0-0)	F, R	1 adult swimmin in canal. Extensive goose excrement on upland.
5/7/2003	Car - Foot	Gerle Canal	NA	Canada goose	2 (2-0-0)	F, R	Pair
5/14/2002	Car - Foot	Gerle Creek	NA	Canada goose	2 (2-1-0)	B, F, R	2 adults with 1 gosling. Low brood size possibly due to predation.
6/19/2002	Car - Foot	Gerle Creek	NA	Canada goose	3 (2-1-0)	B, F, R	2 adults with 1 gosling. See observation from 5/14/2002
3/26/2003	Car - Foot	Gerle Creek	NA	Canada goose	5 (5-0-0)	F, R	

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Survey Date	Survey Method	Reservoir	Location	Species	Number (Adults-YOY-Undetermined)	Activity B = Breeding F = Feeding R = Resting	Comments
4/8/2003	Car - Foot	Gerle Creek	North End	Canada goose	8 (8-0-0)	F, R	
4/22/2003	Car - Foot	Gerle Creek	NA	Canada goose	3 (0-0-3)	F, R	Heard, not seen
5/21/2003	Car - Foot	Gerle Creek	NA	Canada goose	4 (4-0-0)	F, R	2 pair
6/19/2003	Car - Foot	Gerle Creek	Near Platform	Canada goose	4 (4-0-0)	F, R	4 adults near humans
4/8/2003	Car - Foot	Ice House	NA	Canada goose	1 (1-0-0)	F, R	Observed from boat ramp
5/7/2003	Car - Foot	Ice House	NA	Canada goose	2 (2-0-0)	F, R	
6/17/2003	Boat	Ice House	NA	Canada goose	36 (31-5-0)	B, F, R	31 adults in cove near Ice House CG. 1 pair with 5 goslings about 3 weeks old
7/28/2003	Boat	Ice House	Various	Canada goose	24 (20-4-0)	B, F, R	18 adults with/ at least 4 YOY in Ice House CG Cove; 2 adults in upper arm
5/7/2003	Car - Foot	Loon Lake	NA	Canada goose	2 (2-0-0)	F, R	
5/20/2003	Car - Foot	Loon Lake	Pleasant Area	Canada goose	10 (10-0-0)	F, R	Feeding in shallow wetlands/uplands, mostly snow-covered. Some open water
5/21/2003	Car - Foot	Loon Lake	NA	Canada goose	2 (2-0-0)	F, R	
6/19/2003	Boat	Loon Lake	Various	Canada goose	43 (42-1-0)	B, F, R	16 adults on NW shore; 11 in NE arm; 15 in Pleasant area with possibly 1 gosling but birds moved into forest and were wary without vocalizing.
7/29/2003	Boat	Loon Lake	Various	Canada goose	26 (26-0-0)	F, R	3 on middle island; 14 in NW arm of Pleasant area; 3 in upper Pleasant; 6 in NE part of Pleasant meadow
5/29/2002	Helicopter	Union Valley	Camino Cove	Canada goose	60 (0-0-60)	F, R	Approximately 60 geese seen from air during flight over UVR.
6/11/2002	Car - Foot	Union Valley	Camino Cove	Canada goose	110 (0-0-110)	F, R	Feeding in shallow water.
6/12/2002	Car - Foot	Union Valley	Granlee's Cove	Canada goose	65 (0-0-65)	F, R	
6/17/2002	Boat	Union Valley	NA	Canada goose	320 (319-1-0)	B, F, R	Only 1 gosling observed among 319 adult geese
7/9/2002	Foot	Union Valley	NA	Canada goose	65 (65-0-0)	F, R	Geese feeding in meadow just east of Camino Cove CG
2/28/2003	Boat	Union Valley	NA	Canada goose	6 (0-0-6)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Canada goose	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/20/2003	Boat	Union Valley	NA	Canada goose	4 (0-0-4)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/27/2003	Boat	Union Valley	Robbs Peak Cove	Canada goose	5 (5-0-0)	F, R	2 pairs and a single. Showing aggression among the pairs.
4/9/2003	Boat	Union Valley	North Coves	Canada goose	22 (22-0-0)	F, R	In coves feeding on new green vegetation growing in uplands
4/25/2003	Boat	Union Valley	NA	Canada goose	4 (0-0-4)	F, R	Reported by Mike Smith during bald eagle surveys
5/6/2003	Boat	Union Valley	Camino Cove	Canada goose	62 (62-0-0)	F, R	Mostly pairs but some singles, feeding in meadows around Camino Cove
6/17/2003	Boat	Union Valley	Various	Canada goose	303 (303-0-0)	F, R	303 Total (44 ad. In cove west of Camino Cove; 83 in Camino cove; 87 in SPI Cove; 14 in cove west of Wolf Ck CG; 57 in Granlee's Cove; 18 at Sunset Beach)
7/28/2003	Boat	Union Valley	Various	Canada goose	82 (82-0-0)	F, R	13 adults in Camino Cove west; 30 adults in Camino Cove; 8 adults in Camino Cove East; 9 adults in SPI Cove; 2 adults near new CG; 8 adults near SMUDEA; 2 adults near Granlee's Point; 5 adults at Sunset Beach; 5 at Sunset CG.
10/7/2003	Boat	Union Valley	Camino Cove	Canada goose	40 (40-0-0)	F, R	40 geese; 1 bird with black on white neck collar #2/38
3/6/2003	Boat	Union Valley	NA	Cinnamon teal	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle prey surveys
6/17/2003	Boat	Union Valley	SPI Cove	Cinnamon teal	2 (2-0-0)	F, R	Mated pair
3/26/2003	Car - Foot	Gerle Creek	NA	Common goldeneye	3 (3-0-0)	F, R	3 females
2/4/2003	Boat	Ice House	NA	Common goldeneye	1 (1-0-0)	F, R	1 male
3/6/2003	Boat	Union Valley	NA	Common goldeneye	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle prey surveys
11/26/2003	Boat	Union Valley	NA	Common goldeneye	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle surveys
5/7/2003	Car - Foot	Ice House	NA	Common loon	1 (1-0-0)	F, R	Possibly same loon seen at Loon Lake in morning
5/7/2003	Car - Foot	Loon Lake	Northwest area	Common loon	1 (1-0-0)	F, R	
12/30/2002	Car - Foot	Union Valley	NA	Common loon	1 (1-0-0)	F, R	Observed from dam. Mike Smith had also reported a loon from area.
4/9/2003	Boat	Union Valley	NA	Common loon	1 (1-0-0)	F, R	Reported by Mike Smith during bald eagle surveys
4/25/2003	Boat	Union Valley	NA	Common loon	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle surveys

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Survey Date	Survey Method	Reservoir	Location	Species	Number (Adults-YOY-Undetermined)	Activity B = Breeding F = Feeding R = Resting	Comments
5/21/2003	Boat	Union Valley	NA	Common loon	2 (2-0-0)	F, R	Reported by Mike Smith during bald eagle surveys
9/16/2002	Car - Foot	Gerle Canal	NA	Common merganser	6 (0-0-6)	F, R	6 mergansers swimming in Gerle Creek Canal
7/17/2003	Car - Foot	Gerle Canal	NA	Common merganser	7 (1-6-0)	B, F, R	1 female with 6 YOY in canal about 300 yards north of Robbs Peak Res.
5/14/2002	Car - Foot	Gerle Creek	NA	Common merganser	3 (3-0-0)	F, R	
6/19/2002	Car - Foot	Gerle Creek	NA	Common merganser	10 (1-9-0)	B, F, R	1 female with 9 chicks
9/23/2002	Car - Foot	Gerle Creek	NA	Common merganser	2 (2-0-0)	F, R	
11/11/2002	Car - Foot	Gerle Creek	NA	Common merganser	2 (2-0-0)	F, R	2 adult males
11/18/2002	Car - Foot	Gerle Creek	NA	Common merganser	1 (1-0-0)	F, R	1 female perched on log boom then flew toward north end of reservoir
12/30/2002	Car - Foot	Gerle Creek	NA	Common merganser	1 (1-0-0)	F, R	1 male. Reservoir at low level but not frozen
3/26/2003	Car - Foot	Gerle Creek	NA	Common merganser	2 (2-0-0)	F, R	2 females
6/3/2003	Car - Foot	Gerle Creek	NA	Common merganser	1 (1-0-0)	F, R	1 female
6/13/2002	Car - Foot	Ice House	NA	Common merganser	2 (2-0-0)	F, R	2 females near dam
11/18/2002	Car - Foot	Ice House	NA	Common merganser	4 (4-0-0)	F, R	4 males
2/4/2003	Boat	Ice House	NA	Common merganser	1 (1-0-0)	F, R	1 male
4/8/2003	Car - Foot	Ice House	NA	Common merganser	2 (2-0-0)	F, R	Observed from boat ramp
6/17/2003	Boat	Ice House	NA	Common merganser	11 (11-0-0)	F, R	
7/28/2003	Boat	Ice House	Various	Common merganser	19 (4-15-0)	B, F, R	F. with 12 YOY in upper arm - brood scattered when large accipiter made a pass over them; F. with 3 YOY in upper arm; 2 F. on north shore
10/1/2002	Car - Foot	Loon Lake	NA	Common merganser	4 (0-0-4)	F, R	
10/28/2002	Car - Foot	Loon Lake	NA	Common merganser	2 (2-0-0)	F, R	1 male in early breeding plumage with 1 female
11/4/2002	Car - Foot	Loon Lake	NA	Common merganser	2 (2-0-0)	F, R	1 male and 1 female paired
11/11/2002	Car - Foot	Loon Lake	NA	Common merganser	2 (0-0-2)	F, R	
4/8/2003	Car - Foot	Loon Lake	NA	Common merganser	2 (2-0-0)	F, R	Reservoir is filling
5/7/2003	Car - Foot	Loon Lake	NA	Common merganser	3 (3-0-0)	F, R	
5/20/2003	Car - Foot	Loon Lake	NA	Common merganser	10 (10-0-0)	F, R	5 males, 5 females
5/21/2003	Car - Foot	Loon Lake	NA	Common merganser	2 (2-0-0)	F, R	
6/19/2003	Boat	Loon Lake	Various	Common merganser	11 (11-0-0)	F, R	5 males on shore near PH; 1 female on large island near PH; 2 males on north shore; 1 male on east shore; 1 female in NE arm; 1 male on north shore
7/29/2003	Boat	Loon Lake	Various	Common merganser	52 (21-31-0)	B, F, R	F. with 15 YOY near PH; 2 F. near island in middle of reservoir; 11 in Pleasant arm; F. with 16 YOY on south shore; 6 ad. On north shore.
6/26/2002	Foot	Rubicon	NA	Common merganser	3 (0-0-3)	F, R	
6/11/2002	Car - Foot	Union Valley	Camino Cove	Common merganser	10 (1-9-0)	B, F, R	1 adult female with 9 chicks
6/17/2002	Boat	Union Valley	Granlee's Cove	Common merganser	9 (1-8-0)	B, F, R	1 adult female with 8 chicks. Could be brood from 6/11/02 at Camino Cove
10/1/2002	Car - Foot	Union Valley	NA	Common merganser	4 (0-0-4)	F, R	
12/30/2002	Car - Foot	Union Valley	NA	Common merganser	1 (1-0-0)	F, R	1 female observed from West Point area and dam.
1/15/2003	Boat	Union Valley	NA	Common merganser	5 (0-0-5)	F, R	Reported by Mike Smith during bald eagle prey surveys
1/24/2003	Boat	Union Valley	NA	Common merganser	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle prey surveys
2/4/2003	Boat	Union Valley	NA	Common merganser	6 (6-0-0)	F, R	6 females at various locations incl. Fashoda Point, Camino Cove, & Jones Fk
2/6/2003	Boat	Union Valley	NA	Common merganser	3 (0-0-3)	F, R	
2/28/2003	Boat	Union Valley	NA	Common merganser	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Common merganser	5 (0-0-5)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/20/2003	Boat	Union Valley	NA	Common merganser	3 (0-0-3)	F, R	Reported by Mike Smith during bald eagle prey surveys
4/9/2003	Boat	Union Valley	NA	Common merganser	8 (8-0-0)	F, R	Scattered across reservoir
4/25/2003	Boat	Union Valley	NA	Common merganser	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle surveys

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Survey Date	Survey Method	Reservoir	Location	Species	Number (Adults-YOY-Undetermined)	Activity B = Breeding F = Feeding R = Resting	Comments
5/6/2003	Boat	Union Valley	NA	Common merganser	4 (4-0-0)	F, R	Scattered across reservoir
5/21/2003	Boat	Union Valley	NA	Common merganser	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle surveys
6/17/2003	Boat	Union Valley	Various	Common merganser	2 (2-0-0)	F, R	1 female on shore in SPI Cove; 1 female in Granlee's Cove
7/28/2003	Boat	Union Valley	Various	Common merganser	16 (6-10-0)	B, F, R	1 adult in upper Jones Fork arm; 1 female with 4 YOY in Camino Cove west; 1 female with 4 (nearly full-grown YOY) in Camino Cove; 1 female with 2 YOY in east; male/female pair near Yellowjacket CG
10/7/2003	Boat	Union Valley	Various	Common merganser	8 (8-0-0)	F, R	
11/25/2003	Car - Foot	Union Valley	Dam	Common merganser	3 (3-0-0)	F, R	
11/26/2003	Boat	Union Valley	NA	Common merganser	16 (0-0-16)	F, R	Reported by Mike Smith during bald eagle surveys
9/30/2002	Car - Foot	Loon Lake	NA	Eared grebe	1 (1-0-0)	F, R	
1/15/2003	Boat	Union Valley	NA	Eared grebe	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle prey surveys
2/6/2003	Boat	Union Valley	NA	Eared grebe	1 (1-0-0)	F, R	
2/28/2003	Boat	Union Valley	NA	Eared grebe	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/6/2003	Boat	Union Valley	NA	Eared grebe	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle prey surveys
4/9/2003	Boat	Union Valley	NA	Eared grebe	3 (3-0-0)	F, R	All in non-breeding plumage
10/7/2003	Boat	Union Valley	Various	Eared grebe	1 (1-0-0)	F, R	
4/9/2003	Boat	Union Valley	Jones Fork	Lesser scaup	1 (1-0-0)	F, R	In Jones Fork arm
6/18/2002	Car - Foot	Bufflehead Pond	NA	Mallard	1 (1-0-0)	F, R	1 female
9/9/2002	Car - Foot	Bufflehead Pond	NA	Mallard	2 (2-0-0)	F, R	1 male in eclipse plumage and 1 female. Pond level has dropped about 1 ft.
4/8/2003	Car - Foot	Ice House	NA	Mallard	1 (1-0-0)	F, R	1 male observed from boat ramp
6/17/2003	Boat	Ice House	NA	Mallard	3 (3-0-0)	F, R	2 males in eclipse with 1 female - all capable of flight still
5/20/2003	Car - Foot	Loon Lake	NA	Mallard	2 (2-0-0)	F, R	Mated pair
5/21/2003	Car - Foot	Loon Lake	NA	Mallard	2 (2-0-0)	F, R	
6/11/2002	Car - Foot	Union Valley	Camino Cove	Mallard	3 (3-0-0)	F, R	Birds in post-breeding moult (eclipse)
6/17/2002	Boat	Union Valley	NA	Mallard	29 (11-18-0)	B, F, R	7 adults and 18 YOY
10/7/2002	Car - Foot	Union Valley	Camino Cove	Mallard	1 (1-0-0)	F, R	
1/24/2003	Boat	Union Valley	NA	Mallard	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/20/2003	Boat	Union Valley	NA	Mallard	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle prey surveys
3/27/2003	Boat	Union Valley	NA	Mallard	13 (13-0-0)	Flying	Flying low over UVR
4/9/2003	Boat	Union Valley	NA	Mallard	36 (36-0-0)	F, R	Scattered across reservoir, many pairs and a flock of 27 seen flying
4/25/2003	Boat	Union Valley	NA	Mallard	1 (0-0-1)	F, R	Reported by Mike Smith during bald eagle surveys
5/6/2003	Boat	Union Valley	Camino Cove	Mallard	23 (23-0-0)	F, R	Mostly intermixed with geese around Camino Cove
6/17/2003	Boat	Union Valley	Various	Mallard	46 (21-25-0)	B, F, R	46 Total (Male/female pair in Jones Fork arm; F. with 9 YOY in Camino Cove; F. with 7 YOY in SPI Cove; F. with 9 YOY in Granlee's Cove; Flock of 16 in Granlee's Cove that flew off on approach.
7/28/2003	Boat	Union Valley	Various	Mallard	38 (12-26-0)	B, F, R	1 male in eclipse with a female in Camino Cove west; 1 female with 2 YOY in Camino Cove West; 1 female in Camino Cove 11 in Camino Cove; 1 female with 5 YOY in Camino Cove; 1 female with 6 YOY in Camino Cove; 1 female with 2 YOY in SPI Cove; 5 adults in Granlee's Cove.
10/7/2003	Boat	Union Valley	Various	Mallard	7 (7-0-0)	F, R	
4/22/2003	Car - Foot	Wood Duck Pond	NA	Mallard	6 (6-0-0)	F, R	Small pond next to access road to Gerle Creek Dam
9/16/2002	Car - Foot	Bufflehead Pond	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/23/2002	Car - Foot	Bufflehead Pond	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/30/2002	Car - Foot	Bufflehead Pond	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey

Appendix B-3. Results of waterfowl surveys at Upper American River Project reservoirs, May 14, 2002 to November 26, 2003 (sorted by species).

Survey Date	Survey Method	Reservoir	Location	Species	Number (Adults-YOY-Undetermined)	Activity B = Breeding F = Feeding R = Resting	Comments
6/19/2003	Car - Foot	Bufflehead Pond	NA	None	0 (0-0-0)	NA	No waterfowl observed
6/10/2002	Car - Foot	Gerle Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
10/7/2002	Car - Foot	Gerle Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
10/21/2002	Car - Foot	Gerle Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
2/14/2003	Boat	Gerle Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey. Reservoir is frozen upstream of log boom
		Gerle Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed
9/16/2002	Car - Foot	Ice House	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/23/2002	Car - Foot	Ice House	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/30/2002	Car - Foot	Ice House	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
12/30/2002	Car - Foot	Ice House	NA	None	0 (0-0-0)	NA	No waterfowl observed from boat ramp and dam
2/14/2003	Boat	Ice House	NA	None	0 (0-0-0)	NA	
9/16/2002	Car - Foot	Loon Lake	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/23/2002	Car - Foot	Loon Lake	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
12/30/2002	Car - Foot	Loon Lake	NA	None	0 (0-0-0)	NA	No waterfowl observed. Reservoir is drawn down and mostly frozen over.
6/19/2003	Canoe	Slab Creek	NA	None	0 (0-0-0)	NA	No waterfowl observed
9/1/2002	Car - Foot	Union Valley	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/16/2002	Car - Foot	Union Valley	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
9/23/2002	Car - Foot	Union Valley	NA	None	0 (0-0-0)	NA	No waterfowl observed during survey
2/14/2003	Boat	Union Valley	NA	None	0 (0-0-0)	NA	
6/3/2003	Car - Foot	Wood Duck Pond	NA	None	0 (0-0-0)	NA	No ducks observed
6/19/2003	Car - Foot	Wood Duck Pond	NA	None	0 (0-0-0)	NA	No waterfowl observed
3/20/2003	Boat	Union Valley	NA	Pied-billed grebe	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle prey surveys
4/9/2003	Boat	Union Valley	South shore	Pied-billed grebe	2 (2-0-0)	F, R	1 near burn and 1 near Sunset Beach
10/7/2003	Boat	Union Valley	Various	Pied-billed grebe	1 (1-0-0)	F, R	
5/14/2002	Car - Foot	Gerle Creek	NA	Ring-necked Duck	2 (2-0-0)	F, R	
6/11/2002	Car - Foot	Gerle Creek	NA	Ruddy Duck	2 (2-0-0)	F, R	1 adult male with 1 adult female
10/14/2002	Car - Foot	Gerle Creek	NA	Ruddy Duck	1 (1-0-0)	F, R	1 female
1/24/2003	Boat	Union Valley	NA	Tundra swan	4 (0-0-4)	F, R	Reported by Mike Smith during bald eagle prey surveys
2/4/2003	Boat	Union Valley	NA	Tundra swan	3 (0-0-3)	Flying	Flew over UVR from east-west then off toward northeast.
2/28/2003	Boat	Union Valley	NA	Tundra swan	5 (0-0-5)	F, R	Reported by Mike Smith during bald eagle prey surveys
11/18/2002	Car - Foot	Loon Lake	NA	Unidentified	12 (0-0-12)	F, R	12 ducks observed but too far away to tell species
3/6/2003	Boat	Union Valley	NA	Western grebe	2 (0-0-2)	F, R	Reported by Mike Smith during bald eagle prey surveys
6/5/2003	Car - Foot	Junction	NA	Wood duck	1 (1-0-0)	F, R	1 male in non-breeding plumage
4/22/2003	Car - Foot	Wood Duck Pond	NA	Wood duck	2 (2-0-0)	F, R	Male and female pair.
5/7/2003	Car - Foot	Wood Duck Pond	NA	Wood duck	2 (2-0-0)	F, R	Male and female pair.
5/21/2003	Car - Foot	Wood Duck Pond	NA	Wood duck	2 (2-0-0)	F, R	Mated pair

APPENDIX C

PHOTO DOCUMENTATION AT UNION VALLEY AND GERLE CREEK RESERVOIRS

(Click on the Title above to View Files Provided on CD)

APPENDIX D

INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UPPER AMERICAN RIVER PROJECT RELICENSING STUDIES, 2002 AND 2003

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen	Comments
Various	Lower Transmission Line	Acorn woodpecker		
Various	Lower Transmission Line	American crow		
N/A	Silver Creek	American dipper		
N/A	Lower Transmission Line	American goldfinch		
Various	Lower Transmission Line	American kestrel		
04/09/03	Union Valley Reservoir	American pipit	1	Near Wolf Creek CG
05/14/02	Robbs Powerhouse	American robin		
05/15/02	Jaybird Springs Road	American robin		
06/10/02	Various	American robin		
06/11/02	Various	American robin		Partially albino with all white tail feathers at Wolf Ck CG
06/12/02	Various	American robin		
06/13/02	Various	American robin		
06/14/02	Jaybird Springs Road	American robin		
06/20/02	Union Valley Reservoir	American robin		
07/09/02	Union Valley Reservoir	American robin		
04/08/03	Ice House Road	American robin		
04/09/03	Union Valley Reservoir	American robin		
05/06/03	Peavine Ridge Road	American robin		
05/13/03	Iowa Hill	American robin		
05/09/03	Union Valley Reservoir	American white pelican	8	
05/13/03	Iowa Hill	Anna's hummingbird		
06/12/02	Union Valley Reservoir	Bald eagle	2	Adults perched on tree across from Fashoda Beach
06/12/02	Various	Bald eagle		
06/17/02	Union Valley Reservoir	Bald eagle	1	
06/26/02	Loon Lake	Bald eagle	1	Perched on pine east of boat ramp
08/28/02	Loon Lake	Bald eagle	1	Perched between Main and Auxillary dams
10/01/02	Union Valley Reservoir	Bald eagle	1	On south shore across from Sunset Boat ramp
10/01/02	Ice House Reservoir	Bald eagle	1	Soaring above Strawberry CG
10/28/02	Union Valley Reservoir	Bald eagle	2	Pair in Granlee's Point nest stand
11/14/02	Union Valley Reservoir	Bald eagle	2	
11/27/02	Ice House Reservoir	Bald eagle	3	2 adults and 1 juvenile at SFSC inlet
01/07/03	Union Valley Reservoir	Bald eagle	6	Adults and subadults

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen	Comments
01/08/03	Union Valley Reservoir	Bald eagle	2	
01/09/03	Union Valley Reservoir	Bald eagle	1	Caught "muk-luk", Adult non-resident bird
02/04/03	Union Valley Reservoir	Bald eagle	Several	
02/06/03	Union Valley Reservoir	Bald eagle	2	
02/14/03	Union Valley Reservoir	Bald eagle	1	
03/27/03	Union Valley Reservoir	Bald eagle	Several	Copulation and territory defense
04/09/03	Union Valley Reservoir	Bald eagle	2	Adults incubating
04/22/03	Union Valley Reservoir	Bald eagle	1	Incubating
05/06/03	Union Valley Reservoir	Bald eagle	1	
05/07/03	Union Valley Reservoir	Bald eagle	1	On nest
05/07/03	Loon Lake	Bald eagle	3	1 ad., 2 juv. Near boat ramp
05/19/03	Ice House Reservoir	Bald eagle	1	Foraging
05/20/03	Loon Lake	Bald eagle	3	Ad. On possible nest tree, subadult in Pleasant area
06/17/03	Union Valley Reservoir	Bald eagle	1	
06/24/03	Slab Creek Reservoir	Bald eagle	1	
05/24/01	South Fork Silver Creek	Band-tailed pigeon	50-70	Observed during helicopter reconnaissance
06/26/02	Trail to Rubicon Reservoir	Band-tailed pigeon	20-30	
05/14/02	Gerle Creek Reservoir	Barn swallow	1	
05/14/02	Gerle Canal	Barn swallow		Nesting under bridge
05/14/02	Robbs Powerhouse	Barn swallow		
N/A	Buck Island Reservoir	Beaver		
10/21/02	Chili Bar Reach	Belted kingfisher	Several	
06/19/03	Loon Lake	Belted kingfisher	1	
07/28/03	Union Valley Reservoir	Belted kingfisher	4	
07/10/02	Jaybird Springs Road	Black bear	1	Approximately 1 year old near Jaybird Tunnel Adit
04/08/03	Gerle Creek Canal	Black bear		Tracks in snow appear to enter and exit canal
04/09/03	Union Valley Reservoir	Black bear		Tracks on shoreline near Camino Cove
N/A	Lower Transmission Line	Black phoebe		
05/15/02	Jaybird Springs Road	Black-headed grosbeak		
05/13/03	Iowa Hill	Black-headed grosbeak		
04/09/03	Peavine Ridge Road	Black-tailed hare	1	
05/15/02	Jaybird Springs Road	Black-throated gray warbler		

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen	Comments
05/13/03	Iowa Hill	Black-throated gray warbler		
05/15/02	Jaybird Springs Road	Blue grouse	1	
07/09/02	Union Valley Reservoir	Blue grouse		
06/17/02	Union Valley Reservoir	Blue-winged teal	2	Male-female pair
05/06/03	Union Valley Reservoir	Blue-winged teal	2	Probable pair
07/17/03	Ice House Road	Bobcat	1	Crossing road near Robbs Resort
04/09/03	Union Valley Reservoir	Bonaparte's gull	3	1 in adult plumage
Various	Various	Brazilian free-tailed bat		See Technical Report on Bats
06/10/02	Various	Brewer's blackbird		
06/19/02	Gerle Creek Reservoir	Brewer's blackbird		
07/09/02	Union Valley Reservoir	Brewer's blackbird		
07/28/03	Union Valley Reservoir	Brewer's blackbird		
06/13/02	Various	Brown creeper		
06/20/02	Union Valley Reservoir	Brown creeper		
07/08/02	Various	Brown creeper		
07/09/02	Union Valley Reservoir	Brown creeper		
06/12/02	Various	Brown-headed cowbird	1	Wench Creek Campground
06/19/02	Gerle Creek Reservoir	Brown-headed cowbird	1	
06/03/03	Gerle Creek Reservoir	Brown-headed cowbird	2	
05/14/02	Gerle Creek Reservoir	Bufflehead	2	
05/29/02	Bufflehead Pond	Bufflehead	2	2 males
06/11/02	Bufflehead Pond	Bufflehead	1	1 male
06/13/02	Ice House Reservoir	Bufflehead	3	1 male, 2 females
06/18/02	Bufflehead Pond	Bufflehead	2	2 females
07/16/02	Bufflehead Pond	Bufflehead	2	Females
10/28/02	Gerle Creek Reservoir	Bufflehead	6	1 male, 5 females
11/04/02	Gerle Creek Reservoir	Bufflehead	4	2 males, 2 females
11/18/02	Gerle Creek Reservoir	Bufflehead	3	Females
02/04/03	Ice House Reservoir	Bufflehead	6	
02/04/03	Union Valley Reservoir	Bufflehead	10	5 in Jones Fk; 4 m. & 1 f. in Cam. Cove. In courtship flight
02/06/03	Union Valley Reservoir	Bufflehead	Several	
03/26/03	Gerle Creek Reservoir	Bufflehead	4	Courtship flight with 3 males

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen	Comments
03/26/03	Union Valley Reservoir	Bufflehead	2	Male-female pair at Fashoda Beach
03/27/03	Union Valley Reservoir	Bufflehead	2	Male-female pair
04/08/03	Gerle Creek Reservoir	Bufflehead	20+	About equal numbers of both sexes and some pairs
04/08/03	Loon Lake	Bufflehead	Several	
04/09/03	Union Valley Reservoir	Bufflehead	13	
04/22/03	Gerle Creek Reservoir	Bufflehead	7	3 males, 4 females
05/06/03	Union Valley Reservoir	Bufflehead	6	4 males, 2 females
05/07/03	Wood Duck Pond	Bufflehead	1	Male
05/07/03	Gerle Creek Reservoir	Bufflehead	4	Pairs
05/20/03	Loon Lake	Bufflehead	9	4 males, 5 females
05/21/03	Loon Lake	Bufflehead	4	
05/21/03	Gerle Creek Reservoir	Bufflehead	4	2 pairs with males in post-breeding plumage
06/03/03	Bufflehead Pond	Bufflehead	2	Males
06/03/03	Gerle Creek Reservoir	Bufflehead	1	Male
10/07/03	Union Valley Reservoir	Bufflehead	2	
05/14/02	Robbs Powerhouse	California ground squirrel		
10/28/02	Ice House Road	California ground squirrel	1	Road kills
11/18/02	Ice House Road	California ground squirrel		
02/04/03	Ice House Reservoir	California gull	1	
Various	Various	California myotis		See Technical Report on Bats
Various	Lower Transmission Line	California quail		
Various	Various	California spotted owl		See Report on California spotted owl
05/14/02	Gerle Creek Reservoir	Canada goose	3	Including 1 gosling
05/14/02	Gerle Canal	Canada goose	1	Swimmin in canal. Tracks on levee.
05/29/02	Union Valley Reservoir	Canada goose	Approx. 60	Camino cove
06/11/02	Union Valley Reservoir	Canada goose	110-120	Grazing in shallow water at Camino Cove
06/11/02	Gerle Creek Reservoir	Canada goose		Scat along Gerle Canal
06/12/02	Union Valley Reservoir	Canada goose	65	Granlee's Point Cove
06/17/02	Union Valley Reservoir	Canada goose	320	Including 1 gosling
06/19/02	Gerle Creek Reservoir	Canada goose	3	2 adults with 1 gosling
07/09/02	Union Valley Reservoir	Canada goose	60-70	Adults feeding in meadow east of Camino Cove CG
03/26/03	Gerle Creek Reservoir	Canada goose	5	

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen	Comments
03/27/03	Union Valley Reservoir	Canada goose	5	2 pairs and a single
04/08/03	Gerle Creek Reservoir	Canada goose	8	
04/08/03	Ice House Reservoir	Canada goose	1	
04/09/03	Union Valley Reservoir	Canada goose	22+/-	Scattered around north shore coves
04/22/03	Gerle Creek Reservoir	Canada goose	Several	Heard only
05/06/03	Union Valley Reservoir	Canada goose	62	Mostly pairs around Camino Cove
05/07/03	Gerle Canal	Canada goose	2	Pair
05/07/03	Loon Lake	Canada goose	2	
05/07/03	Ice House Reservoir	Canada goose	2	
05/20/03	Loon Lake	Canada goose	10	8 in Pleasant arm
05/21/03	Loon Lake	Canada goose	2	
05/21/03	Gerle Creek Reservoir	Canada goose	4	2 pair
06/17/03	Union Valley Reservoir	Canada goose	303	
06/17/03	Ice House Reservoir	Canada goose	36	Including 5 goslings
06/19/03	Loon Lake	Canada goose	53	Including 1 gosling
06/19/03	Gerle Creek Reservoir	Canada goose	4	Adults being fed by campers
07/28/03	Union Valley Reservoir	Canada goose	80	
07/28/03	Ice House Reservoir	Canada goose	24	Including 4 YOY
07/29/03	Loon Lake	Canada goose	26	
10/07/03	Union Valley Reservoir	Canada goose	40	One with black on white neck collar #2/38
05/15/02	Jaybird Springs Road	Canyon wren	1	
05/14/02	Robbs Powerhouse	Cassins finch	4	Non-breeding plumage
09/23/02	Ice House Road	Chipmunk sp		Road kills
11/18/02	Ice House Road	Chipmunk sp		
06/20/02	Union Valley Reservoir	Chipping sparrow		
07/08/02	Various	Chipping sparrow		
07/09/02	Union Valley Reservoir	Chipping sparrow		
05/06/03	Peavine Ridge Road	Chipping sparrow		
07/28/03	Union Valley Reservoir	Chipping sparrow		
06/17/03	Union Valley Reservoir	Cinnamon teal	2	Pair in cove east of Camino Cove
05/15/02	Jaybird Springs Road	Cliff swallow		
05/15/02	White Rock Powerhouse	Cliff swallow		Nesting beneath crane facility

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen	Comments
07/10/02	Jaybird Springs Road	Common bushtit		
02/04/03	Ice House Reservoir	Common goldeneye	1	
03/26/03	Gerle Creek Reservoir	Common goldeneye	3	Females
12/30/02	Union Valley Reservoir	Common loon	1	
05/07/03	Loon Lake	Common loon	1	
05/07/03	Ice House Reservoir	Common loon	1	
05/14/02	Gerle Creek Reservoir	Common merganser	30-50	
06/11/02	Union Valley Reservoir	Common merganser	10	1 female with 9 YOY
06/13/02	Ice House Reservoir	Common merganser	2	2 females near dam
06/17/02	Union Valley Reservoir	Common merganser	9	Including 8 YOY
06/19/02	Gerle Creek Reservoir	Common merganser	10	1 female with 9 YOY
06/26/02	Rubicon Reservoir	Common merganser		
09/16/02	Gerle Creek Reservoir	Common merganser	6	
09/23/02	Gerle Creek Reservoir	Common merganser	2	
10/01/02	Union Valley Reservoir	Common merganser	4	
10/01/02	Loon Lake	Common merganser	4	
10/28/02	Loon Lake	Common merganser	2	Male-female pair
11/04/02	Loon Lake	Common merganser	2	Male-female pair
11/11/02	Loon Lake	Common merganser	2	Males
11/11/02	Gerle Creek Reservoir	Common merganser	2	Males
11/18/02	Gerle Creek Reservoir	Common merganser	1	Female perched on log boom then flew to north end
11/18/02	Ice House Reservoir	Common merganser	4	Males
12/30/02	Gerle Creek Reservoir	Common merganser	1	Male
12/30/02	Union Valley Reservoir	Common merganser	1	Female
02/04/03	Ice House Reservoir	Common merganser	1	Male
02/04/03	Union Valley Reservoir	Common merganser	5	Females
02/06/03	Union Valley Reservoir	Common merganser	Several	
03/26/03	Gerle Creek Reservoir	Common merganser	2	Females
04/08/03	Loon Lake	Common merganser	2	
04/08/03	Ice House Reservoir	Common merganser	2	
04/09/03	Union Valley Reservoir	Common merganser	8	Scattered around north shore coves
05/06/03	Union Valley Reservoir	Common merganser	4	

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen	Comments
05/07/03	Loon Lake	Common merganser	3	
05/20/03	Loon Lake	Common merganser	10	5 males, 5 females
05/21/03	Loon Lake	Common merganser	2	
06/03/03	Gerle Creek Reservoir	Common merganser	1	Female
06/17/03	Union Valley Reservoir	Common merganser	2	Females
06/17/03	Ice House Reservoir	Common merganser	11	
06/19/03	Loon Lake	Common merganser	11	
07/17/03	Gerle Creek Canal	Common merganser	7	1 female with 6 YOY about 300 yards n. of Forebay
07/28/03	Union Valley Reservoir	Common merganser	16	Including 10 YOY
07/28/03	Ice House Reservoir	Common merganser	19	Including 15 YOY
07/29/03	Loon Lake	Common merganser	52	Including 31-32 YOY
10/07/03	Union Valley Reservoir	Common merganser	8	
11/25/03	Union Valley Reservoir	Common merganser	3	
N/A	Rubicon Reservoir	Common nighthawk		
06/03/03	Loon Lake	Common poorwill	1	
05/14/02	Ice House Road	Common raven		
06/10/02	Various	Common raven		
06/11/02	Various	Common raven		
06/12/02	Various	Common raven		
06/13/02	Various	Common raven		
07/08/02	Various	Common raven		
07/09/02	Union Valley Reservoir	Common raven		
04/08/03	Ice House Road	Common raven		
04/09/03	Union Valley Reservoir	Common raven		
05/06/03	Peavine Ridge Road	Common raven		
05/13/03	Iowa Hill	Common raven		
07/28/03	Union Valley Reservoir	Common raven		
10/22/03	Iowa Hill	Common raven	20	
09/23/02	Gerle Creek Reservoir	Cooper's hawk	1	
09/30/02	Gerle Creek Reservoir	Cooper's hawk	1	
07/09/02	Union Valley Reservoir	Coyote		
07/10/02	Union Valley Reservoir	Coyote	1	

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen	Comments
10/07/02	Union Valley Reservoir	Coyote	1	
11/11/02	Ice House Road	Coyote		Tracks
05/15/02	Jaybird Springs Road	Dark-eyed junco		
06/10/02	Various	Dark-eyed junco		
06/12/02	Various	Dark-eyed junco		
06/13/02	Various	Dark-eyed junco		
06/20/02	Union Valley Reservoir	Dark-eyed junco		
07/08/02	Various	Dark-eyed junco		
07/09/02	Union Valley Reservoir	Dark-eyed junco		Nest with young in meadow east of Camino Cove CG
07/10/02	Jaybird Springs Road	Dark-eyed junco		
05/06/03	Peavine Ridge Road	Dark-eyed junco		
05/13/03	Iowa Hill	Dark-eyed junco		
07/28/03	Union Valley Reservoir	Dark-eyed junco		
10/22/03	Iowa Hill	Dark-eyed junco		
10/01/02	Loon Lake	Double-crested cormorant	1	
06/20/02	Union Valley Reservoir	Douglas squirrel		
07/08/02	Various	Douglas squirrel		
07/09/02	Union Valley Reservoir	Douglas squirrel		
09/03/02	Ice House Road	Douglas squirrel		Road kills
09/09/02	Ice House Road	Douglas squirrel		Road kills
10/14/02	Ice House Road	Douglas squirrel	2	Road kills
10/28/02	Ice House Road	Douglas squirrel	2	Road kills
11/18/02	Ice House Road	Douglas squirrel		
04/08/03	Ice House Road	Douglas squirrel	1	
11/25/03	Union Valley Reservoir	Douglas squirrel		
11/18/02	Loon Lake	Duck sp.	12	Too distant to identify but probably Common mergansers
02/06/03	Union Valley Reservoir	Eared grebe	1	
04/09/03	Union Valley Reservoir	Eared grebe	3	Non-breeding plumage
10/07/03	Union Valley Reservoir	Eared grebe	1	
Various	Lower Transmission Line	European starling		
Various	Union Valley Reservoir	Flammulated owl		
06/10/02	Various	Fox sparrow		

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen	Comments
07/09/02	Union Valley Reservoir	Fox sparrow		
Various	Various	Fringed myotis		See Technical Report on Bats
N/A	Ice House Road	Golden eagle		
06/12/02	Various	Golden-crowned kinglet		
06/13/02	Various	Golden-crowned kinglet		
06/14/02	Jaybird Springs Road	Golden-crowned kinglet		
Various	Ice House Road	Golden-mantled ground squirrel		
06/14/02	Jaybird Springs Road	Gray fox		
05/24/01	South Fork Silver Creek	Great blue heron	1	Observed during helicopter reconnaissance
06/17/02	Union Valley Reservoir	Great blue heron	1	Camino cove
10/01/02	Union Valley Reservoir	Great blue heron	1	
10/21/02	Chili Bar Reach	Great blue heron	Several	
06/17/03	Union Valley Reservoir	Great blue heron	1	
07/28/03	Union Valley Reservoir	Great blue heron	4	
07/28/03	Ice House Reservoir	Great blue heron	3	On south shore
07/29/03	Loon Lake	Great blue heron	1	Pleasant area
11/25/03	Union Valley Reservoir	Great blue heron	1	
Various	Jaybird Springs Road	Great horned owl		
09/30/02	Loon Lake	Grebe sp.	1	Probably eared grebe
10/01/02	Union Valley Reservoir	Green heron	1	
06/12/02	Road 12N0XA	Hairy woodpecker		
07/09/02	Union Valley Reservoir	Hairy woodpecker		
06/10/02	Various	Hammond's flycatcher		
N/A	Lower Transmission Line	Hermit thrush		
06/20/02	Union Valley Reservoir	Hermit warbler		
Various	Lower Transmission Line	House finch		
05/06/03	Union Valley Reservoir	Killdeer		
06/19/03	Loon Lake	Killdeer	1	
05/14/02	Gerle Creek Reservoir	Kinglet sp.		
06/11/02	Various	Kinglet sp.		
06/12/02	Various	Kinglet sp.		
06/20/02	Union Valley Reservoir	Kinglet sp.		

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen		Comments
07/08/02	Various	Kinglet sp.			
07/09/02	Union Valley Reservoir	Kinglet sp.			
04/09/03	Union Valley Reservoir	Lesser scaup	1		Jones Fork arm
06/12/02	Various	Lewis' woodpecker			
06/19/02	Gerle Creek Reservoir	MacGillvray's warbler			
06/20/02	Union Valley Reservoir	MacGillvray's warbler			
06/11/02	Union Valley Reservoir	Mallard			Several in eclipse plumage
06/17/02	Union Valley Reservoir	Mallard	25		Including 18 YOY
06/18/02	Bufflehead Pond	Mallard	1		female
09/09/02	Bufflehead Pond	Mallard	2		1 male - 1 female
10/07/02	Union Valley Reservoir	Mallard	1		Camino cove
03/27/03	Union Valley Reservoir	Mallard	13		Flying low over water
04/08/03	Ice House Reservoir	Mallard	1		Male
04/09/03	Union Valley Reservoir	Mallard	36		Many pairs and at least one flock of 27 flying
04/22/03	Wood Duck Pond	Mallard	6		3 pairs
05/06/03	Union Valley Reservoir	Mallard	23		
05/20/03	Loon Lake	Mallard	2		Pair
05/21/03	Loon Lake	Mallard	2		
06/17/03	Union Valley Reservoir	Mallard	46		Including 25 YOY
06/17/03	Ice House Reservoir	Mallard	3		
07/28/03	Union Valley Reservoir	Mallard	39		Including 15 YOY
10/07/03	Union Valley Reservoir	Mallard	7		
06/13/02	Various	Mountain bluebird			
05/14/02	Gerle Creek Reservoir	Mountain chickadee			
06/11/02	Various	Mountain chickadee			
06/12/02	Various	Mountain chickadee			
06/20/02	Union Valley Reservoir	Mountain chickadee			
07/08/02	Various	Mountain chickadee			
N/A	Union Valley Reservoir	Mountain lion			Tracks
06/10/02	Various	Mountain quail			
06/11/02	Various	Mountain quail			
06/12/02	Road 12N0XA	Mountain quail			

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen	Comments
06/13/02	Various	Mountain quail		
10/22/03	Iowa Hill	Mountain quail		
06/13/02	Various	Mourning dove		
06/14/02	Jaybird Springs Road	Mourning dove		
05/06/03	Peavine Ridge Road	Mourning dove		
09/09/02	Ice House Road	Mule deer		Adult crossed road 0.2 mi east of Loon Lake dump station
11/25/02	Highway 50	Mule deer	6	Road kills at lower elevations including many bucks
03/26/03	Peavine Ridge Road	Mule deer	2	Young deer
04/09/03	Ice House Road	Mule deer	4	Cleveland Corral
05/06/03	Peavine Ridge Road	Mule deer	5	At least 1 small buck
07/17/03	Ice House Road	Mule deer	1	Road kill. Small buck with 2-in antlers in velvet
10/22/03	Iowa Hill	Mule deer	1	3-point buck near edge of clear-cut on NE side of area
06/13/02	Various	Nashville warbler		
06/14/02	Various	Nashville warbler		
05/13/03	Iowa Hill	Nashville warbler		
06/10/02	Various	Northern flicker		
06/12/02	Road 12N0XA	Northern flicker		
06/13/02	Various	Northern flicker		
06/20/02	Union Valley Reservoir	Northern flicker		
07/09/02	Union Valley Reservoir	Northern flicker		
05/06/03	Peavine Ridge Road	Northern flicker		
05/13/03	Iowa Hill	Northern flicker		
10/22/03	Iowa Hill	Northern flicker		
07/15/03	Jaybird Springs Road	Northern goshawk	1	Responded to broadcast call
N/A	Lower Transmission Line	Northern harrier		
N/A	Lower Transmission Line	Northern mockingbird		
N/A	Lower Transmission Line	Northern pocket gopher		
N/A	Lower Transmission Line	Oak titmouse		
05/14/02	Gerle Creek Reservoir	Olive-sided flycatcher	1	
06/11/02	Various	Orange-crowned warbler		
06/20/02	Union Valley Reservoir	Orange-crowned warbler		
05/14/02	Jones Fork Powerhouse	Osprey		Active nest about 150-200 m east of powerhouse

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen	Comments
06/12/02	Jones Fork Powerhouse	Osprey		Incubating
06/12/02	Road 12N0XA	Osprey	2	Nests near Ice House Road and near end of road
06/13/02	Ice House Reservoir	Osprey	4	Active nest at southeast arm of reservoir
06/17/02	Union Valley Reservoir	Osprey	2	Nest located between Jones Fk and Lone Rock CG
06/17/02	Union Valley Reservoir	Osprey	2	Nest in Dam Grove
06/26/02	Loon Lake	Osprey	1	
07/06/02	Loon Lake	Osprey	2	Near Pleasant CG
07/15/02	Loon Lake	Osprey	1	Foraging near PH and flying westward with fish
03/26/03	Big Hill	Osprey	1	Flying over big hill to the northeast
04/08/03	Ice House Reservoir	Osprey	2	
04/09/03	Union Valley Reservoir	Osprey	3	Pair in Jones Fork arm and 1 on Ice House Rd. nest
05/06/03	Union Valley Reservoir	Osprey	4	Nests at various locations
05/07/03	Ice House Reservoir	Osprey	1	Foraging
05/07/03	Ice House Road	Osprey	2	Adding sticks to nest near road
05/20/03	Loon Lake	Osprey	1	Foraging
05/21/03	Gerle Creek Reservoir	Osprey	1	Flying high overhead
06/03/03	Loon Lake	Osprey	1	Carrying fish westward near aux. Boat ramp
06/05/03	Union Valley Reservoir	Osprey	1	Incubating on nest along south shore in burn area
06/17/03	Union Valley Reservoir	Osprey	2	
06/17/03	Ice House Reservoir	Osprey	2	Incubating
06/19/03	Loon Lake	Osprey	1	
06/24/03	Slab Creek Reservoir	Osprey	1	
07/14/03	Union Valley Reservoir	Osprey	Several	Nests active
07/17/03	Union Valley Reservoir	Osprey	3	Ad. Feeding 2 young on south side of reservoir
07/28/03	Union Valley Reservoir	Osprey	Several	Nestlings in at least 2 nests
07/28/03	Ice House Reservoir	Osprey	2	On nest
07/29/03	Loon Lake	Osprey		
06/14/02	Jaybird Springs Road	Pacific-slope flycatcher		
07/10/02	Jaybird Springs Road	Pacific-slope flycatcher		
04/09/03	Union Valley Reservoir	Pied-billed grebe	2	South shore near burn area and Sunset beach
10/07/03	Union Valley Reservoir	Pied-billed grebe	1	
06/11/02	Gerle Dam Access Road	Pileated woodpecker	1	Responded in agitated manner to goshawk call

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen	Comments
07/10/02	Jaybird Springs Road	Pileated woodpecker		
10/28/02	Union Valley Reservoir	Pileated woodpecker	1	
12/30/02	Ice House Road	Pileated woodpecker	1	Near Big Creek CG
06/04/03	Jaybird Springs Road	Pileated woodpecker	1	
06/18/02	Wentworth Springs	Pine grosbeak	Several	
05/15/02	White Rock Powerhouse	Pygmy owl		Heard only
07/28/03	Union Valley Reservoir	Raccoon		Tracks
N/A	Union Valley Reservoir	Red crossbill		
05/14/02	Gerle Creek Reservoir	Red-breasted nuthatch		
06/11/02	Various	Red-breasted nuthatch		
06/20/02	Union Valley Reservoir	Red-breasted nuthatch		
07/09/02	Union Valley Reservoir	Red-breasted nuthatch		
04/08/03	Ice House Road	Red-breasted nuthatch		
04/09/03	Union Valley Reservoir	Red-breasted nuthatch	1	
11/25/03	Union Valley Reservoir	Red-breasted nuthatch		
N/A	Ice House Road	Red-breasted sapsucker		
N/A	Lower Transmission Line	Red-shouldered hawk		
06/11/02	Gerle Canal	Red-tailed hawk	2	Soaring above canal
06/17/02	Union Valley Reservoir	Red-tailed hawk	1	
07/09/02	Union Valley Reservoir	Red-tailed hawk		
12/30/02	Union Valley Reservoir	Red-tailed hawk	1	Perched on dam
02/14/03	Union Valley Reservoir	Red-tailed hawk	1	
04/09/03	Union Valley Reservoir	Red-tailed hawk	1	Near Robbs Peak PH
05/06/03	Union Valley Reservoir	Red-tailed hawk	4	Juvenile near osprey nest in Dam Grove; 1 ad. In Camino
07/28/03	Union Valley Reservoir	Red-tailed hawk		
07/09/02	Union Valley Reservoir	Red-winged blackbird		
10/28/02	Loon Lake	Ringed-bill gull	1	
05/14/02	Gerle Creek Reservoir	Ring-necked duck	2	
11/11/02	Highway 50	Ringtail	1	Road kill on Hwy 50 1.7 miles west of Fresh Pond
N/A	South Fork American River	River otter		
05/15/02	Camino Powerhouse	Rough-winged swallow		
N/A	Union Valley Reservoir	Ruby-crowned kinglet		

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen	Comments
06/11/02	Gerle Creek Reservoir	Ruddy duck	2	Male-female pair
10/14/02	Gerle Creek Reservoir	Ruddy duck	1	female
06/12/02	Various	Scrub jay		Ice House Road near Hwy 50
06/11/02	Gerle Canal	Sharp-shinned hawk	2	Soaring above canal
02/04/03	Ice House Road	Snowshoe hare	1	Near cleveland corral
03/27/03	Union Valley Reservoir	Snowshoe hare	1	On road between Camino Cove and Wolf Creek CG
06/05/03	Union Valley Reservoir	Snowshoe hare	1	In transitional pelage - brown w/white feet and tail
06/13/02	Silver Creek	Song sparrow	Several	Sparrows in streamside meadow below Ice House Dam
06/20/02	Union Valley Reservoir	Song sparrow		
06/19/02	Gerle Creek Reservoir	Spotted sandpiper	1	
06/17/03	Union Valley Reservoir	Spotted sandpiper		
07/28/03	Ice House Reservoir	Spotted sandpiper	2	In southeast arm
07/29/03	Loon Lake	Spotted sandpiper	4	
05/15/02	Jaybird Springs Road	Spotted towhee		
05/14/02	Gerle Creek Reservoir	Steller's jay		
06/10/02	Various	Steller's jay		
06/11/02	Various	Steller's jay		
06/12/02	Various	Steller's jay		
06/13/02	Various	Steller's jay		
06/20/02	Union Valley Reservoir	Steller's jay		
07/08/02	Various	Steller's jay		
07/09/02	Union Valley Reservoir	Steller's jay		
04/08/03	Ice House Road	Steller's jay		
05/06/03	Peavine Ridge Road	Steller's jay		
05/13/03	Iowa Hill	Steller's jay		
07/28/03	Union Valley Reservoir	Steller's jay		
N/A	Lower Transmission Line	Striped skunk		
06/12/02	Road 12N0XA	Townsend's solitaire		
11/18/02	Ice House Road	Townsend's solitaire	1	On Loon Lake Road
02/04/03	Union Valley Reservoir	Tundra swans	3	Flying over reservoir
06/10/02	Various	Turkey vulture		
06/11/02	Various	Turkey vulture		

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen		Comments
06/12/02	Various	Turkey vulture			
05/06/03	Peavine Ridge Road	Turkey vulture			
N/A	White Rock Powerhouse	Violet-green swallow			
11/18/02	Ice House Road	Western bluebird	10		On Loon Lake Road
07/08/02	Various	Western gray squirrel			
09/03/02	Ice House Road	Western gray squirrel			Road kills
09/23/02	Ice House Road	Western gray squirrel			Road kills
10/28/02	Ice House Road	Western gray squirrel	1		Road kills
05/13/03	Iowa Hill	Western gray squirrel			
11/25/03	Union Valley Reservoir	Western gray squirrel			
03/06/03	Union Valley Reservoir	Western grebe	2		
05/15/02	White Rock Powerhouse	Western kingbird			
Various	Lower Transmission Line	Western meadowlark			
Various	Various	Western screech owl			
05/15/02	Jaybird Springs Road	Western tanager			
06/11/02	Various	Western tanager			
06/20/02	Union Valley Reservoir	Western tanager			
07/08/02	Various	Western tanager			
05/13/03	Iowa Hill	Western tanager			
06/19/03	Bufflehead Pond	Western tanager	1		
05/13/03	Iowa Hill	White-breasted nuthatch			
06/19/03	Bufflehead Pond	White-breasted nuthatch	1		
Various	Loon Lake	White-crowned sparrow			
06/11/02	Various	White-headed woodpecker			
06/12/02	Wench Creek Campground	White-headed woodpecker			Nesting in Campground sign
07/08/02	Various	White-headed woodpecker			
Various	Lower Transmission Line	White-tailed kite			
07/09/02	Union Valley Reservoir	Wild turkey			
06/13/02	Various	Williamson's sapsucker			
06/13/02	Various	Wilson's warbler			
06/20/02	Union Valley Reservoir	Wilson's warbler			
11/25/02	Union Valley Tunnel Adit	Winter wren	1		

APPENDIX D. INCIDENTAL OBSERVATIONS OF 140 +/- BIRDS AND MAMMALS DURING UARP RELICENSING STUDIES, 2002-2003

Date (YR-MO-DY)	General Location	Species	Number Seen	Comments
04/22/03	Wood Duck Pond	Wood duck	2	Male-female pair
05/07/03	Wood Duck Pond	Wood duck	2	Male-female pair
05/21/03	Wood Duck Pond	Wood duck	2	Pair
06/05/03	Junction Reservoir	Wood duck	1	Male in non-breeding plumage
07/09/02	Union Valley Reservoir	Yellow-headed blackbird		
05/14/02	Gerle Creek Reservoir	Yellow-rumped warbler		
05/15/02	Jaybird Springs Road	Yellow-rumped warbler		
06/12/02	Various	Yellow-rumped warbler		
06/13/02	Various	Yellow-rumped warbler		
06/20/02	Union Valley Reservoir	Yellow-rumped warbler		
07/09/02	Union Valley Reservoir	Yellow-rumped warbler		
05/06/03	Peavine Ridge Road	Yellow-rumped warbler		
Various	Various	Yuma myotis		