Northern Spotted Owl Inventory and Monitoring

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Executive Summary

In 2004, call-playback surveys were conducted within the Bridge Coastal Fish and Wildlife Restoration Program (BCRP) study area. The primary objective of these surveys was to better determine the current distribution and range of the endangered (COSEWIC) Spotted Owl (*Strix occidentalis caurina* – Merriam) at the northern extent of the species range in North America. Financial support for the surveys was provided by BCRP and the Ministry of Water, Land and Air Protection (MWLAP).

Transects were delineated using maps depicting habitat suitability reconciled against topographic information. A total of thirteen areas were designated for survey in the Carpenter, Seton, Anderson and Bridge River watersheds*. Surveys were conducted using the call playback techniques along road and hiking transects. Relevant data was collected for each transect and survey station following the MWLAP Spotted Owl Survey Standards and Protocols (Hobbs et al. 2004). Three replicate surveys were conducted along each transect in accordance with the provincial Spotted Owl Survey Standards.

All owl species detected during the surveys were recorded, resulting in total of 39 owl detections. The most common species detected was Barred Owl (*Strix varia*) (59.0%) followed by Great Horned Owl (*Bubo virginianus)* (15.4%) and then Northern Saw-whet Owl (*Aegolius acadicus*) (12.8%), Northern Pygmy-Owl (*Glaucidium californicum*) (7.7%) was less frequent, and the rarest detections were Flammulated Owl (*Otus flammeolus*) (2.6%), and Spotted Owl (*Strix occidentalis caurina*) (2.6%).

On July 11 a Spotted Owl was detected in an area with no previous Spotted Owl detections near the township of D'Arcy - along the East side of Anderson Lake. This site is one of only 18 active Spotted Owl sites recorded in BC in 2004. The detection of this owl has implications on management of this critically imperiled species. The paucity of active sites remaining in the province suggests that habitat values for Spotted Owls within the Anderson Lake area should be considered in the recovery planning for this species. In addition to supporting an active Spotted Owl, this site also serves to provide connectivity between two owl populations that were formerly regarded as discrete. Further attempts were made to determine the status of the owl at this site (i.e., resident, paired, breeding) but logistics hindered these efforts during the 2004 field season. It is recommended that this area be re-surveyed in 2005.

Important additional observations include the detection of a Flammulated Owl (*Otus flammeolus*) (Blue-listed – Conservation Data Centre, 2001) in an area formerly regarded as outside the known provincial range for this species. This detection in the Carpenter watershed represents a southwest expansion of the species' known current distribution in the province. Two Racers (*Coluber constrictor mormon*) (Blue-listed – Conservation Data Centre, 2001) were also detected during the surveys near the town of Shalath – both of these detections represent new observations in an area not previously known to support this species.

The information collected during the course of the 2004 Spotted Owl survey work provides valuable information to help guide management decisions and to further the development of conservation initiatives for the Spotted Owl in BC. This information may also assist in the development of the BCRP strategic plan. The detection of an owl within the BCRP area has served to raise the profile of this area in Spotted Owl conservation efforts in BC.

Finally, the extension component of this project successfully involved the local Lillooet community and the broader BC naturalist community through two educational presentations.

These audio-visual presentations served to raise awareness of Spotted Owl conservation efforts in BC and served to improve the awareness of the role of the BCRP in these efforts.

*The Stave Lake watershed was originally proposed yet could not be conducted due to access issues. This in turn allowed for a more extensive survey of the Anderson Lake watershed by enabling the access of remote areas using helicopters.

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1. Introduction

1.1. Species Information

The Northern Spotted Owl (*Strix occidentalis caurina*-Merriam*)* is found from southwestern British Columbia, western Washington and Oregon, and into northwestern California (Forsman et al. 1984, Courtney et al. 2004). In Canada it is only found in British Columbia where detections range as far north as Carpenter Lake, east to Mowhokam Creek and west to Capilano River. Thomas et al. (1990) characterized superior Spotted Owl habitat as having:

> "a multi-layered, multi-species canopy dominated by large (>30 inches in diameter breast height.) conifer overstory trees, and an understory of shade-tolerant conifers or hardwoods; a moderate to high (60 to 80%) canopy closure; substantial decadence in the form of large, live coniferous trees with deformities-such as cavities, broken tops, and dwarf mistletoe infections; numerous large snags; ground-cover characterized by large accumulations of logs and other woody debris; and a canopy that is open enough to allow owls to fly within and beneath it."

Home range size for Spotted Owls is influenced by the quality and quantity of habitat present. Home range size estimates from Washington State suggest a median annual home range for the Western and Eastern Cascades of 3321 ha and 2675 ha respectively, with total suitable owl habitat compositions of 82% and 71% respectively (Godwin, 2003). Carey et al. (1990) found that home range size expanded significantly with decreasing proportions of old growth and were smaller in the breeding season than in the non-breeding season.

The Spotted Owl was designated as "Endangered" by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 1996 and reconfirmed in 1999 (Kirk, 1999). Historical populations within British Columbia were estimated to be up to 500 breeding pairs based on availability of historic owl habitat (Blackburn et al. 2002). Currently 18 active sites are known for the province; however, it is estimated that there may be as many as 30 sites remaining in BC (Hobbs, 2004a). There are several threats to the Spotted Owl population throughout its entire range. According to Forsman et al. (1984), the single largest limiting factor to Spotted Owl population growth is habitat availability (old-growth and late successional forest). Mature and old-growth forests have been increasingly reduced and fragmented as a result of urban development, agriculture, natural events (fire, wind blow), stochastic events and most significantly, commercial forestry activities (Thomas et al. 1990).

1.2. Hydroelectric Impact

In the late 1950's and 1960's the Seton, Bridge and Stave watersheds were subject to major alterations from hydroelectric development and dams. The amount of upland forested and lowland coniferous area that was flooded or altered by reservoir impoundment of these watersheds totaled 4072 ha (Bridge-Coastal Fish and Wildlife Restoration Program, Strategic Plan – Volume 2). The alteration and loss of habitat impacted local fish and wildlife populations, and more directly the amount of suitable Spotted Owl habitat in the watersheds. In their watershed plans the Bridge-Coastal Fish and Wildlife Restoration Program (BCRP) outlined various restoration objectives to address the historical effects of hydroelectric development on the fish and wildlife resources in their operational footprint. As part of the program's objectives BCRP provided funding for the 2004 Spotted Owl inventory and monitoring project to be conducted within the Bridge, Seton and Stave* watersheds.

*The Stave Lake watershed was originally proposed yet could not be conducted due to access issues.

2. Goals and Objectives

The objective of the study was to conduct Spotted Owl occupancy and breeding surveys to determine the population distribution of the Spotted Owl in the BC Hydro operational footprint areas of the Seton and Bridge watersheds. The selected study areas contained suitable habitat and/or previous Spotted Owl detections, yet had limited or no previous inventory information. In 2003 the Seton/Anderson watershed had been established, through telemetric monitoring of juvenile dispersal movements, to provide important connectivity habitat between two discrete owl populations. This find emphasized the need for a comprehensive inventory effort in the Seton/Anderson watershed. Management and recovery strategies have recognized that intensive and range-wide inventories of the Spotted Owl are necessary to better determine the current distribution of the population remaining in BC. The inventory of these watersheds for Spotted Owls could prove to be extremely important in determining owl activity, thus influencing management and recovery strategies for the Spotted Owl in British Columbia and the immediate watersheds. Additional Spotted Owl detections for the province could further help determine connectivity corridors, population densities and augmentation options for this endangered owl species.

The inventory conducted could provide additional information to guide the following restoration objectives:

- Identify key habitats for conservation of biodiversity and enhanced production,
- Improve the knowledge of the current distribution of rare, endangered and threatened species and habitat utilization in the Bridge and Seton watersheds
- Address inventory data gaps and identify research issues
- Target habitat for acquisition and protection

These restoration activities have been formulated by BCRP to help mitigate direct footprint impacts from hydroelectric operations in the Seton and Bridge watersheds (Colin, 2000).

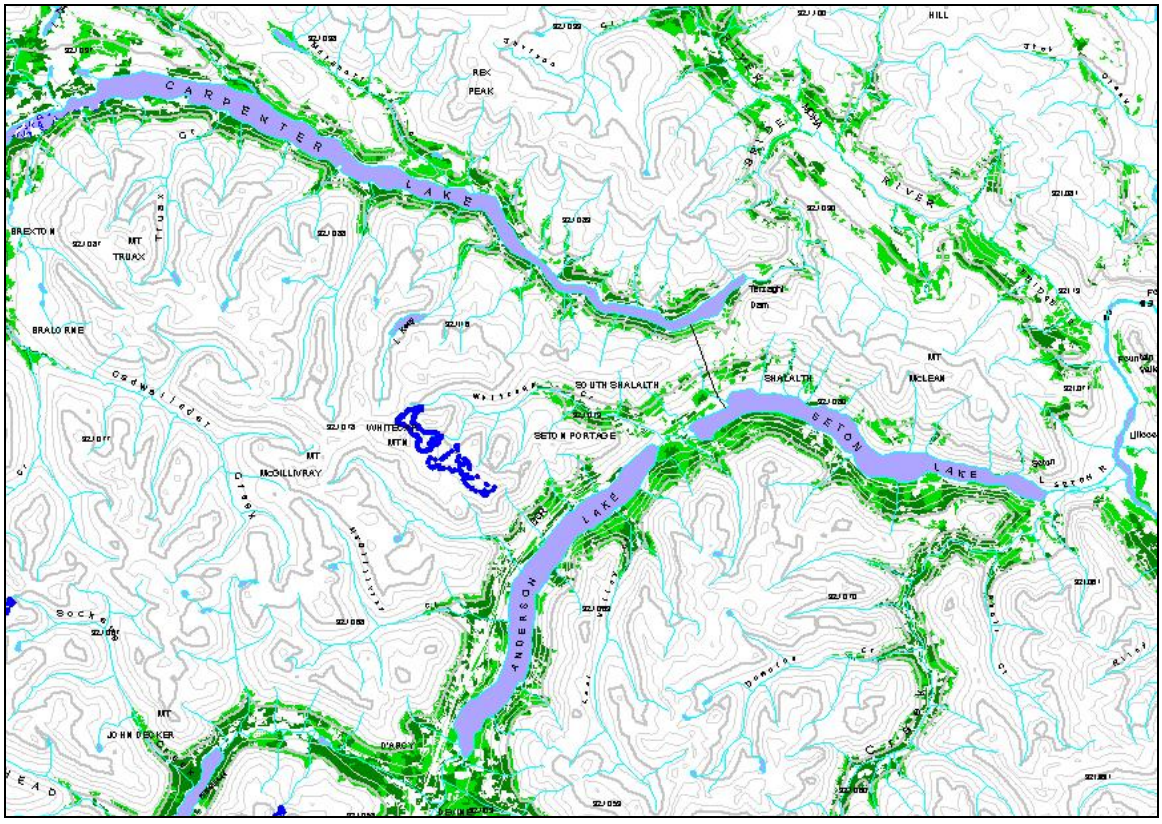
3. Study Area

3.1. Biophysical Description

The study area, situated in the Cascades Forest District, was concentrated in the Bridge and Seton watersheds as shown in Figure 1. The Interior Douglas-fir (IDF) biogeoclimatic zone (BEC) characterizes the lower elevations of these watersheds (Meidinger et al., 1991). The IDF habitat present within the study area included areas of suitable Spotted Owl habitat, as described in section 1.1. This designation was based on Terrain Resource Information Management (TRIM) data, Spotted Owl habitat suitability modeling, and habitat evaluation by a species expert (Hobbs, J. pers comm.). At upper elevations the IDF transitions into the Engelmann Spruce-Sub-alpine-Fir (ESSF) and Montane Spruce (MS) BEC zones at elevations above 1200-1300 metres (Meidinger et al., 1991). Current Spotted Owl habitat modeling excludes the ESSF, MS and Mountain Hemlock (MH) BEC zones, as there are very limited observations of owl use within these forest types. In accordance with these suitability parameters surveys were concentrated within the IDF BEC zone.

Environmental effects such as wind blow-down, fire and insect infestations have created a mosaic of uneven aged forests associated with the disturbance regime of these geographical areas. The forested valley slopes of the Seton and Bridge watersheds have been further altered through harvest activities, hydroelectric development and to a lesser extent, urbanization.

Figure 1. Study area within the Cascades Forest District with suitable Spotted Owl habitat indicated in green.



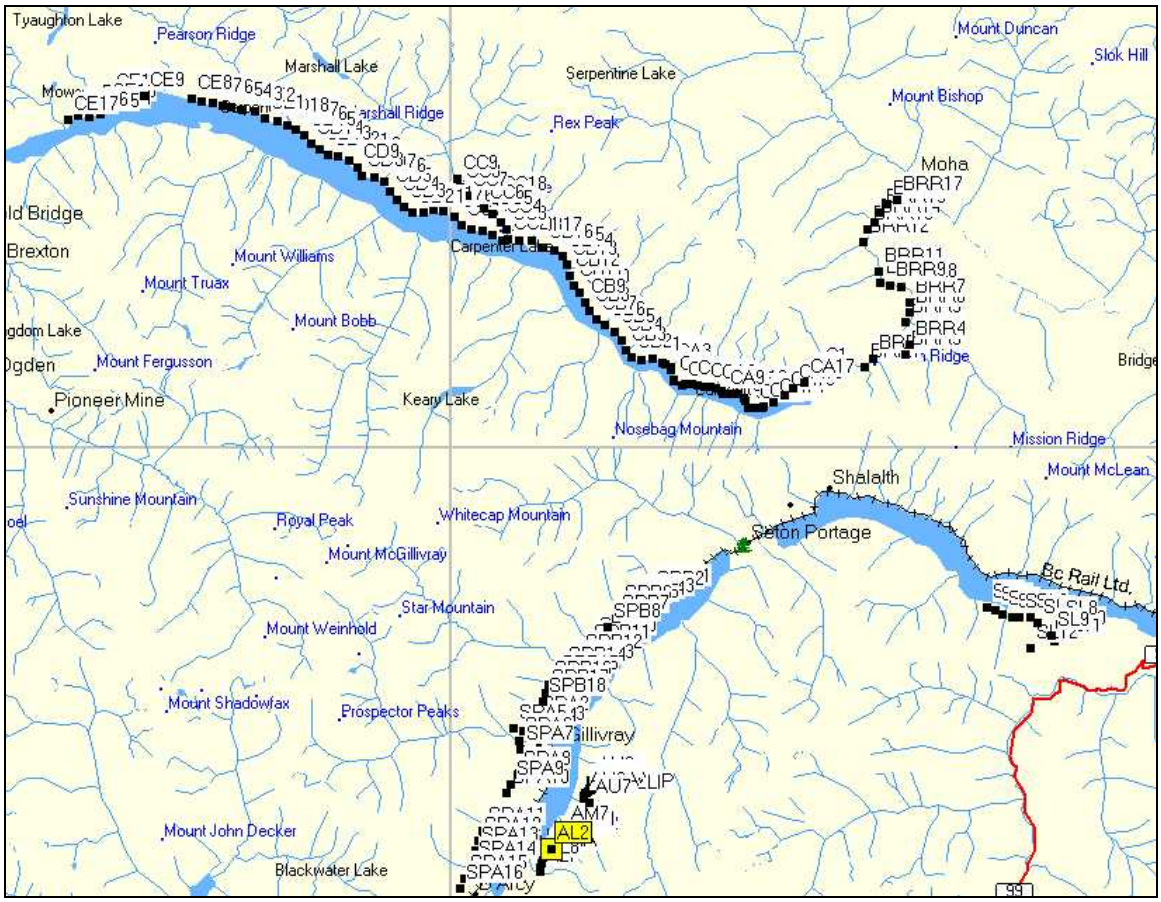
4. Methods

4.1. Transect Locations

Transects were positioned within areas of suitable Spotted Owl habitat. Thirteen transects were established in the following areas:

- Carpenter Lake: five transects were located along the Gunn Lake Road along the north side of Carpenter Lake. These transects surveyed habitat along both sides of Carpenter Lake. The first section of the Marshall Lake road was also surveyed.
- Bridge River: One transect was located along Bridge river between the Yalakom river and the east end of Carpenter Lake.
- Anderson Lake: two transects were located along the Seton-Portage Road, on the west side of Anderson lake, west of the town of Seton. In addition, four hiking transects were established along the east side of the lake (access via helicopter). These transects also included habitat within the Lost Creek Valley.
- Seton Lake: A single transect was established along the southeast end of Seton lake. This area was frequented by a dispersing juvenile Spotted Owl in 2003 and is included within a proposed Long Term Activity Center (LTAC) that currently supports an active breeding Spotted Owl pair.

Figure 2. Location of survey transects and stations within the Seton and Bridge watersheds.



4.2. Transect Layout

Transect placement was based on Terrain Resource Information Management (TRIM) data, Spotted Owl habitat suitability modeling and existing known Spotted Owl detections within the identified watersheds. Transects were designed to provide a continuous acoustic 'coverage' of the entire study area or survey route, and to target suitable habitat areas. Preliminary daytime reconnaissance was conducted for each transect to ensure optimal placement of stations and assess for any hazards or safety concerns. Remote hiking transects were designed to cover an area efficiently, yet with all safety precautions considered. In steep terrain transects were shorter and involved spot checks.

4.3. Call-playback (Occupancy) Surveys

Spotted Owls can be located using acoustic lure (also referred to as call-playback) surveys; this technique involves broadcasting a recording of mature Spotted Owl territorial call. If a Spotted Owl hears a call from a perceived conspecific (broadcasted call), territorial resident males will often respond by approaching the source of the call and calling repeatedly in response. This behavior facilitates detection of Spotted Owls in their environment (RISC. 2001, Forsman. 1983, Forsman. 1995). Broadcast stations were positioned along transects to optimise call broadcast distance using site-specific topographic features within areas of suitable habitat. In addition, all previous Spotted Owl detections were also surveyed.

Spotted Owl call-playback surveys were conducted throughout the months of May, June and July 2004. Nine driving transects were placed along roads that tended to follow the valley bottoms in a linear pattern. Four transects were established in a poorly accessible area along the East side of Anderson Lake. To survey this area a series of hiking transects were established along the valley's forested slopes and accessed via helicopter. The survey crews were placed along the slope and the surveys conducted simultaneously to allow for optimal coverage of the site and diminish the risk of multiple detections of the same owl. The transects were placed in core habitat areas and composed of shorter distances with longer survey stations to a maximum of 1.25 hrs. These types of transects are used as an alternative for determining occupancy in extremely steep remote areas with no road or marked trail access.

Based on MWLAP survey standards (Hobbs et al. 2004), call play-back survey stations were spaced roughly 500m (range 400 m to 800 m) apart for driving transects and approximately 200-400m (range 150 m to 500 m) for walking transects. These distances ensure sufficient acoustic 'coverage' of the habitat being surveyed. Call-playback surveys began approximately one half hour after sunset and continued until the transect area was covered. On average, driving transects were a minimum of 8 km in length with a minimum of 17 call play-back survey stations.

After arriving at each station surveyors listened for a period of 1-2 minutes and then began broadcasting Spotted Owl calls using a Fanon™ (10 watt) megaphone and portable CD player for broadcasting. Spotted Owl calls were broadcast in three distinct bouts (each bout lasting approximately 1.5 minutes) with a 3 to 4-minute pause between bouts. Each station lasted for a minimum of 15 minutes. More time (and extra call bouts) was allotted to a station (at the surveyors discretion) to compensate for unfavorable acoustic conditions (i.e., airplane noise, traffic noise, river/creek noise, etc.).

According to the provincial survey standards (Hobbs et al, 2004) a survey area is considered "Occupied" if a Spotted Owl is detected within the survey area at any time throughout the year

and during the night or day. A study area may be considered "Vacant" if greater than 13.0 hr of total search effort collected during the breeding period is expended over 3 or more nights surveys spaced a minimum 5 days apart (preferably 1 month apart), throughout the study area. The survey standards (Hobbs et al, 2004) go on to specify that these criterion provide for a minimum 90% chance of detecting a Spotted Owl if one is present in the study area. Conversely, this criterion accepts that there is a 1 in 10 chance that a study area will be wrongly deemed "Vacant" despite the presence of a Spotted Owl. As such, for forest management related issues, there is a minimum requirement to obtain vacant status over 2 or more consecutive years prior to officially declaring a study area vacant. For population monitoring, it is assumed that these undetected owls will be detected in subsequent survey years. The 2004 inventory was designed based on these protocols to allow for 3 repetitions of each survey transect.

4.4. Breeding Surveys

The intent of breeding status surveys (also referred to as 'day-time follow up' surveys; Hobbs et al. 2004) is to visually locate Spotted Owls during the daytime to determine pair status, nesting status and/or nest productivity. Breeding surveys are typically conducted in response to a previous detection from the previous night's survey. An attempt is made to locate the owl in the day based on the position and information recorded from the associated call playback station. Once the owls are located surveyors must try to determine the following objectives:

- Identification of nest location
- Assignment of pair status ("Is a pair present or is it a solitary resident at the site?")
- Assignment of breeding status ("If a pair is present are they nesting?").

4.5. Data Collected

Data was collected following the MWLAP Survey Protocol and Standards for the Spotted Owl in British Columbia (Hobbs et al, 2004). Habitat data were not collected at call play-back survey stations as these local site conditions are not relevant to Spotted Owl habitat use in most instances. Spotted Owls detected at night may have traveled long distances to respond to surveyors. As such, the habitat surrounding each survey station, and at each detection location generated as a result of the use of acoustic lures, may not reflect true habitat use by Spotted Owls (Hobbs et. al., 2004). Habitat information is required for each day roost location or nest site detected as a result of surveys; however, no nests or day roosts were detected within the BCRP study areas in 2004.

A brief description of the survey route, including notes on start and end locations and number of stations, was recorded for each survey. The following attributes were recorded for each transect conducted.

For each station surveyors recorded:

- Survey Name – Name assigned to the survey transect previously or, in previously unsurveyed areas, a survey name based on the nearest gazetted topographic feature (typically a river, creek or lake).
- Sampling conditions (wind, precipitation, temperature) – Wind speed using the Beaufort scale, precipitation (N-None, MD-Misty drizzle, LR-Light Rain, HR-Heavy rain (surveys should not be conducted)), and temperature in degrees Celsius.
- Survey date – dd/mm/yy.
- Surveyors – include first and last name of all surveyors.
- Station coordinates using handheld Global Positioning System (GPS) units and accurate coverage (NAD 83 UTM coordinates).

- Start time – the exact military time (24 hour) (in minutes), that the first Spotted Owl call was broadcasted.
- End time – the exact military time (24 hour) (in minutes), that the station was complete. This is typically 15 minutes after the start time but may vary to accommodate site-specific conditions (i.e., extensions to compensate for extraneous noise).
- Any other raptor observations – all other raptor observations were recorded.
- Incidental observations – any species of Red- or Blue-listed flora or fauna that are incidentally observed should be recorded and should include notes on location (GPS - UTM) and behavior (for fauna).

If an owl (of any species) was detected at any point during the survey the following attributes were recorded:

- Species – the species, identified following the conventional species code format as detailed in the RISC standards
- Response time – Record exact time elapsed (in minutes) between the first broadcasted call and the first detected response from the owl. This field can aid determination of the owl's initial proximity to the call-playback station (prior to the first detected response).
- Type of detection (visual or acoustic) – Record whether the first detection of the owl(s) was visual or acoustic.
- Type of call – Record and describe the type(s) of calls for each owl detected. Call types can allow inference of the degree of territoriality demonstrated by the responding owl.
- Duration of call – Record the exact duration, or length, of each calling bout (minutes). Bouts are defined as a series of calls with no more than 2 minutes of silence between calls. In the event that the owl calls in a series of bouts the location and duration of each bout should be recorded. This field is useful for inference regarding the degree of territoriality demonstrated by the responding owl. Relative knowledge of call duration can aid inferences regarding breeding status and distance to daytime activity centers (roosts and nests).
- Time since sunset – Record the exact time, in hours and minutes (hh:mm) that has elapsed since sunset. This field is useful for inferring the potential proximity of the owl from the daytime roost or activity (nest) area.
- Sex of owl – Record the sex of the owl responding. If there is uncertainty make a guess and note your uncertainty. The sex of the owl responding can be used to infer information about the distance to daytime activity centers (roosts and nests).
- Direction to call – Record the direction, from the station to the owls estimated location, for each successive calling bout.
- Distance to call - Record the distance, from the station to the owls estimated location, for each successive calling bout.
- Location – Record the projected coordinates of the detection if the location of the calling owl could not be approached safely at night. Separate numbered locations should be recorded for each successive calling bout. Ensure accurate coverage is available when acquiring owl detection coordinates.
- Additional Comments and observations.

5. Results

5.1. Call-playback Surveys

Surveys were conducted on a total of thirteen transects throughout the study area. Three repetitions were conducted for twelve transects (as per the survey protocols); a remote transect was surveyed only once due to logistic constraints. These survey efforts resulted in 520 stations visited over a period of 34 nights for a total of 131.9 hours (7891 minutes) of inventory. From these surveys 39 owls were detected, including a single Spotted Owl detection, to equal 0.30 owl detections per hour. Table 1 represents the total area surveyed for each transect within the designated watershed. These figures are based on the estimated 500m area covered by acoustic broadcast calls per station (Hobbs et al, 2004). These results are estimations, as topographic features can influence the efficacy of broadcast calls.

Table 1. Representation of the effective area surveyed for each transect based on an estimated 500m acoustic broadcast for each station.

Trasect Name	Watershed	Number of Stations	Area covered (km2)
Carpenter Lake 1	Bridge/Carpenter	18	14.22
Carpenter Lake 2	Bridge/Carpenter	17	13.43
Carpenter Lake 3	Bridge/Carpenter	18	14.22
Carpenter Lake 4	Bridge/Carpenter	18	14.22
Carpenter Lake 5	Bridge/Carpenter	17	13.43
Bridge River	Bridge/Carpenter	17	13.43
Seton Lake	Seton	13	10.27
Lost Valley	Anderson	15	11.85
Anderson East Upper	Anderson	7	5.53
Anderson East Lower	Anderson	8	6.32
Anderson East Middle	Anderson	7	5.53
Anderson West Lower	Anderson	16	12.64
Anderson West Upper	Anderson	17	13.43
Total - All Watersheds		**155**	**122.45**

5.2. Summary of Owl Detections

All owl detections were recorded opportunistically and data were collected as outlined in Section 4.5. This provided an approximate inventory of the presence and distribution of other owl species inhabiting the study area as presented in Table 2. Any attempt to determine occupancy of a given species should be done using a species-specific broadcast call type (RISC, 2001). Because three repetitions were conducted for each transect the results likely include repeated detections of the same owls (based on proximity to previous detections) for some of these detections. In some cases pairs were also detected. It should be noted that repeated observations of these species serves to indicate residency status for the owl at that site; however, the lack of repeated detections may not result in a 90% confidence assumption of resident status as different owl species demonstrate different response rates to acoustic lure surveys. No focused attempt was made to determine breeding status of non-target taxa; no juvenile owls were detected in 2004.

Table 2. Detection rates for owl species in response to call-playback surveys conducted in Bridge and Seton watersheds in 2004.

Species	Number of Detections	Detection Frequency (#of detections/#of stations
Barred Owl	23	4.42%
Great Horned Owl	6	1.15%
Northern Saw Whet-owl	5	0.96%
Northern Pygmy Owl	3	0.58%
Spotted Owl	1	0.19%
Flammulated Owl	1	0.19%
All species combined	**39**	**7.50%**

5.2.1. Spotted Owls

On July 11 a Spotted Owl was detected in an area with no previous Spotted Owl detections near the Township of D'Arcy - along the East side of Anderson Lake. This site is one of only 18 active Spotted Owl sites recorded in BC in 2004. The owl was detected on the last repetition of a remote hiking transect by Jared Hobbs and Louise Dykeslag. As mentioned in section 4.5, habitat data were not collected at occupancy survey stations, yet habitat attributes of remote hiking transects are generally reflective of suitable Spotted Owl as they are conducted within targeted habitat areas. The habitat along the East side of Anderson, and more directly the habitat of the Spotted Owl detection station, is characterized by age class 9 (>140 years of age), IDF forested habitat with several fire refugia stands that feature a high density of potential nesting structures. Talus features were also prominent in the landscape; Spotted Owls may use these features opportunistically for foraging as they may support higher densities of Bushy-tailed Woodrats (*Neotoma cinerea*) (Hobbs. pers. comm.). In general, this stand represented excellent quality Spotted Owl habitat. Owl sign (pellets and whitewash) was noted in the stand on all surveys; during the third survey an adult male Spotted Owl emitted a single four-note territorial call in response to call-playback. Immediately following the response an attempt was made to visually locate the owl (to determine band status (i.e. banded/un-banded)) but these attempts were unsuccessful. A second attempt was made at dawn, for four hours, the following morning but again these attempts failed to result in a second detection of the Spotted Owl at this site. The resident, paired and breeding status of the owl at this site remains undetermined for 2004.

5.2.2. Barred Owl (*Strix varia*)

The most common owl detected during the inventory was the Barred Owl. Detections of this species represented 59% of all owl detections resulting from the surveys. Twenty-three Barred Owl detections were recorded, including two pairs. Barred owl numbers were highest on the Seton Lake transect.

5.2.3. Great Horned Owl (*Bubo virginianus)*

The second most common owl detected was the Great Horned owl with a total of six owls detected, including one pair. These detections represent 15.4% of the total owl detections. Great Horned owls were most commonly encountered in the Carpenter Lake area. On July 1, during the 2nd replicate of the Carpenter Lake survey, a Great Horned Owl demonstrated a classic hunting response to the Spotted Owl acoustic lure by flying in silently to investigate the Spotted Owl recorded call.

5.2.4. Northern Saw-whet Owl (*Aegolius acadicus*)

Northern Saw-whet owls were the most common small owl detected during these surveys. Five detections (12.8%) of Northern Saw-whets were recorded, all along Anderson Lake. These were often in close proximity to riparian areas.

5.2.5. Northern Pygmy-Owl (*Glaucidium californicum*)

Northern Pygmy-Owl detections were less frequent resulting in a total of only three detections. Detections of Northern Pygmy Owls represent 7.7% of the owl detections from the surveys however the low detection frequency may be an artifact of the species ecology as this species is diurnal (active in the daytime) or crepuscular (active at dawn and dusk) and as such is less likely to be heard vocalizing at night. Based on observation and previous experience the habitat along Carpenter Lake and along the Bridge River appears to represent high quality Northern Pygmy Owl habitat. The forested slopes in these areas are comprised of low crown closure old-growth stands with frequent openings for foraging. These small owls were heard vocalizing spontaneously in the daytime, and at dawn and dusk, more commonly than any other species of owl detected during the surveys.

5.2.6. Flammulated Owl (*Otus flammeolus*)

Flammulated Owls were the least commonly detected species of owl detected during the 2004 Spotted Owl surveys. A single individual male Flammulated Owl was detected on June 21st along a Carpenter Lake transect.

5.3. Other Opportunistic Detections of 'Listed' Species

Of notable mention was the detection of two provincially Blue-listed Racers (*Coluber constrictor mormon*) (Conservation Data Centre, 2001) near the town of Shalath during daytime reconnaissance activities. Both of these detections represent new observations of this snake species in an area not previously known to support Racers. Spotted Owl work has also alerted surveyors to the presence of Spotted Bats (*Euderma maculatum*) (Blue listed – Conservation Data Centre, 2001) in the nearby Cayoosh Creek watersheds.

6. Community Outreach

The public awareness component of the project involved the presentation of an informative Spotted Owl lecture within the local community. Presentations were conducted in the communities of Lillooet and Victoria. This component proved successful in creating important relationships with the local public and in promoting the efforts of the Bridge Coastal Fish and Wildlife Restoration Program. Appendix C includes a digital copy of the PowerPoint presentation delivered through these presentations.

7. Discussion

The Spotted Owl Inventory and Monitoring project successfully achieved a complete one-year Spotted Owl inventory of the Bridge and Seton watersheds. The low Spotted Owl detection frequency (3%) recorded during this inventory is consistent with broader inventories, utilizing identical methods, conducted within the owl's range in the rest of BC in 2004 (Hobbs. 2004a). A single Spotted Owl was detected during the course of the surveys; this observation has implications for the management and conservation of this imperiled species. Given the small population and current rate of decline all breeding pairs and individuals detected in the wild are valuable for recovery (M.Chutter. pers comm.). In addition to supporting an active Spotted Owl, the habitat at this site also serves to provide connectivity between two owl populations that were formerly regarded as discrete. Evidence of this has been demonstrated through the results of the 2003 juvenile radio-telemetry project. Two dispersing juvenile Spotted Owls both occupied the Anderson Valley for a portion of their dispersal (Hobbs. 2004b). Future radio-telemetry studies on dispersing juvenile Spotted Owls may shed more light on the importance of this area as both a movement corridor and an owl territory.

Many studies have identified the continued loss and fragmentation of suitable owl habitat as the greatest threat to Spotted Owl populations. Within the Anderson, Carpenter and Seton Lake area large areas of suitable owl habitat have been cleared through flooding and the construction of hydroelectric transmission corridors. Figure 3 shows a view of Anderson Lake valley demonstrating habitat fragmentation from both commercial logging operations and hydroelectric transmission corridors (as seen in the distance). The cumulative effects of transmission corridors have both a direct and an indirect effect on the local Spotted Owl population:

- By reducing the amount of available nesting and foraging habitat resident owls are impacted directly. To compensate for the dilution of habitat within their home range resident owls are forced to increase their annual movements in search of prey, which has a concomitant effect on productivity and survivorship (Ripple et al. 1997). Spotted Owl nest sites may have also been eliminated as a result of the clearing of nest habitat.
- Indirectly, habitat fragmentation may influence Spotted Owls by causing a concomitant increase in the local populations of both Great Horned Owls and Barred Owls. Both of these species may benefit when forest clearing results in an increase in the amount of 'forest edge' on the landscape.

As both species have been shown to predate directly on Spotted Owls this has the potential to impact local Spotted Owl populations (NB: Great Horned Owl predatory behavior was noted during the surveys along Carpenter Lake – an adult Great Horned Owl flew in silently to investigate the broadcasted Spotted Owl call at station CC2).

Research by Houston et al (1998) reported a potential increase in the range and numbers of Great Horned Owls as a direct result of the creation of new habitats through logging and rural development within the Pacific Northwest. Fragmentation of old-growth habitat has also been credited for the continuing range expansion of Barred Owl populations (Godwin, 2003). This owl species has been expanding its range into southwestern Canada, the northern Rockies and the Pacific states where it has invaded the range of the Spotted Owl. The Barred Owl's adaptability and aggressive nature appear to allow it to take advantage of habitat fragmentation, and to expand its range where it may compete with the Spotted Owl for available resources. Throughout the range of the Spotted Owl, Barred Owls now occupy many territories once occupied by Spotted Owls (Courtney et al, 2004). Hybridization is also a concern as Kelly et al, (2003) documented several cases of hybridization between Barred Owls and Spotted Owls (cited in Courtney et al, 2004). The high incidence of Barred Owl detections during surveys in the BCRP study area may

be further indication of the increasing presence of these owls in British Columbia. Many biologists are concerned that the invasion of the Barred Owl is having a direct effect on the viability of Spotted Owl populations where there is range overlap. In addition to the negative effects Barred Owls exert upon Spotted Owl populations, there is also evidence to suggest that Barred Owls predate heavily on resident small owls. Several researchers have reported a decline in numbers of small owls in areas where Barred Owls have taken residence (Cannings et al, 2001).

Figure 3. Southeast view of Anderson Lake; note the habitat alteration from hydro and forestry related development.

The detection of other owl species during the surveys provided initial information regarding the distribution of owl species within BCRP's footprint area. As these owl species were not specifically targeted during call-playback surveys population estimates cannot be inferred.
In addition to the benefit of collecting information on the local Spotted Owl population within the study area, opportunistic observations of two other rare species were also recorded:

- The detection of a male Flammulated Owl results in an expansion of the specie's known range, as there are no previous Flammulated Owl detections for this area. The habitat along Carpenter Lake and Bridge river is characteristic of ideal Flammulated Owl nesting habitat, described as mature Douglas-fir and ponderosa pine forest, featuring snags in advanced decay class with frequent small grassy openings providing foraging opportunities (Cannings and van Woudenberg 2004). The Carpenter/Bridge area has been designated as potential habitat for the Flammulated Owl, although the nearest detections have been in the Fraser River valley at Lytton and Churn Creek (Cannings and van Woudenberg 2004). Immediate threats to the provincially Blue-listed Flammulated Owl include the loss of critical nesting, security, and foraging habitat features through commercial forestry operations and development of forested areas within the range of the

species. Secondary threats are described as overgrazing of foraging habitat from livestock, snag removal for safety reasons and firewood, and reduction of foraging habitat through fire suppression (Cannings et al., 2004).

- Two Racers (*Coluber constrictor mormon*) were detected near the township of Shalath. An adult female was captured, photographed and measured (108cm snout-vent length (SVL)) during a habitat reconnaissance hike. This species has not been recorded in this area previously.

The results of the study provided information to assist with the implementation of the restoration objectives of the BCRP strategic plans and watershed plans for the targeted watersheds. The detection of a Spotted Owl within these watersheds presents important management and conservation implications and helps raise the profile of this critically imperiled species in this area.

8. Management Recommendations

The following four recommendations address separate concerns and recommendations that stemmed from the 2004 BCRP inventory work:

1) The scarcity of remaining currently active Spotted Owl sites in the province suggests that the single active Spotted Owl site within the Anderson Lake area should be considered in the recovery planning for this species. Based on assessment of available suitable habitat it is likely that the entire territory of the owl at this detection site is contained within the Anderson lake BCRP area (Hobbs, pers. comm.). Therefore, the Seton/Anderson watersheds need to be recognized as an important connectivity corridor; the habitat within this corridor should be maintained and protected to enable continued genetic exchange between two otherwise disconnected active Spotted Owl populations.

2) The cumulative affects of existing proposals for development by Independent Power Producers (IPPs) is a major concern for Spotted Owl habitat management within the species range in BC. BC Hydro could play a supportive role in mitigating further impacts to suitable Spotted Owl habitat within their operational area by working to reduce the continued loss of suitable habitat as a result of the development of hydroelectric transmission corridors. This would entail working with the province, and independent power producers (IPP) to ensure that, wherever possible, transmission corridors are shared between power producers.

3) Surveys should be conducted for a second year within the Seton and Bridge watersheds to ensure that MWLAP Survey Protocol and Standards for the Spotted Owl are met. At most the East Anderson Lake detection of the single Spotted Owl should be assessed and the status (single, paired or breeding) of this owl confirmed.

4) Surveys targeting each individual owl species detected during the 2004 project would present a more accurate distribution of these owls within the BCRP footprint area, as well as an associative habitat assessment. A thorough inventory for Blue-listed species such as the Flammulated Owl and Western-Screech owl (*macfarlanei* subspecies) in the Bridge and Seton watersheds would provide BCRP with valuable information regarding these owl's distribution and help guide further management decisions, as needed.

9. Acknowledgements

The project and report were prepared with financial support of the Bridge-Coastal Fish and Wildlife Restoration Program (BC Hydro), and coordinated by the provincial Ministry of Water, Land and Air Protection (MWLAP) who also contributed significant in-kind monetary and administrative support. Thanks go to Janice Doane, BCRP Manager for her support on the project. Special thanks are due to Stewart Guy for managing the project and to both Jenny Hutchison (MWLAP) and the BCCF Southern BC Regional Office for administering the project. Thanks also go to the technicians who spent many nights surveying these areas by truck and on foot. Finally, this project would not have been possible without the support and expertise contributed by Jared Hobbs (MWLAP). In addition Jared's comments and review on this report, as well as, the contribution of his images for the cover page were greatly appreciated.

10. References

Blackburn, I., A. Harestad, J. Smith, R. Hentze, and C. Lenihan. 2002. Draft Population Assessment of the Northern Spotted Owl in British Columbia 1992-2001. Ministry of Water, Land and Air Protection, Surrey BC.

Cannings, R. J., and T. Angell. 2001. Western Screech-owl (*Otus kennicottii*). In the Birds of North America, No. 597 (A. Poole and F. Gill,eds.). The Birds of North America, Inc., Philadelphia, PA.

Cannings, R.J., and A.M. van Woudenberg. 2004. Flammulated Owl *Otus flammeolus*. Accounts and measures for managing identified wildlife. Ministry of Water, Land and Air Protection, B.C. Accounts V.

Carey, A., J. Reid, and S. Horton. 1990. Spotted Owl home range and habitat use in southern Oregon coast ranges. Journal of Wildlife Management, 54(1): 11-17.

Colin, K., C. Lamont, S. MacFarlane. 2000. Bridge Coastal Fish and Wildlife Restoration Program Volume 2: Watershed Plan. http://www.bchydro.com/bcrp/strategic_plan.html

Conservation Data Centre (CDC). 2001. BC Species and Ecosystems Explorer. Ministry of Sustainable Resource Management. http://srmwww.gov.bc.ca/cdc/

Courtney, S.P., J.A. Blakesley, R.E. Bigley, M.L Cody, J.P. Dumbacher, R.C. Fleischer, A.B. Franklin, J.F. Franklin, R.J. Gutierrez, J.M. Marzluff, L Sztukowski. 2004. Scientific evaluation of the status of the Northern Spotted Owl. Sustainable Ecosystems Institute. Portland, Oregon.

Forsman, E. 1983. Methods and Materials for Locating and Studying Spotted Owls. U.S. Department of Agriculture. Pacific Northwest Research Station. Corvalis, Oregon, USA.

Forsman, E. 1995. Spotted Owl Monitoring Protocols for Demographic Studies. U.S. Department of Agriculture. Pacific Northwest Research Station. Corvalis, Oregon, USA. 11 pp.

Forsman, E., C. Meslow, and H. Wight. 1984. Distribution and biology of the Spotted Owl in Oregon. Wildlife Monographs 87:1-64.

Godwin, S. 2003. The Status of the Spotted Owl (*Strix occidentalis caurina*) in British Columbia. Ministry of Water, Land and Air Protection, BC.

Hobbs. 2004a. Draft (in prep) Spotted Owl Inventory Report, 2004. Ministry of Water, Land and Air Protection, Victoria BC.

Hobbs. 2004b. Draft Spotted Owl Nest Site Descriptions (2002 & 2003) & Juvenile Spotted Owl Telemetry and Monitoring – 2003/2004. Ministry of Water, Land and Air Protection, Victoria BC.

Hobbs, J., Blackburn, I., and A. Harestad. 2004. Survey protocols for the Northern Spotted Owl, *Strix occidentalis caurina* in British Columbia. Resource and Inventory Standards Committee.

Houston, C.S., D.G. Smith, and C. Rohner. 1998. The Birds of North America, No. 372.

Kirk, David 1999. Update COSEWIC status report on the Northern Spotted Owl *Strix occidentalis caurina* in Canada. Committee on the Status of Endangered Wildlife in Canada. Vii + 14pp.

Kelly, E.G., E.D. Forsman, and R.G., Anthony. 2003. Are barred owls displacing spotted owls? Condor 105(1):45-53.

Meidinger, D. and J. Pojar. 1991. Ecosystems of British Columbia. BC Ministry of forests, Victoria, BC.

RISC (Resource Inventory Committee). 2001. Standards for Components of British Columbia's Biodiversity No. 11. V 2.0. Prepared by Ministry of Resource Management, Environment Inventory Branch for the Terrestrial Ecosystems Task Force Resource Inventory Committee.

Ripple, W.J., P.D. Lattin, K.T. Hershey, F.F. Wagner, and E.C. Meslow. 1997. Landscape composition and pattern around Northern Spotted Owl nest sites in Southwest Oregon. J. Wildlife Management 61(1):151-158.

Thomas, J., Forsman, E., Lint, J., Meslow, E., Noon, B., and J, Verner. 1990. A Conservation Strategy for the Spotted Owl. (Interagency Scientific Committee to Address the Conservation of the Spotted Owl). Portland, Oregon.

Personal Communications

Hobbs, J. 2004. IWMS Biologist. Ministry of Water, Land and Air Protection

Chutter, M. 2003. Provincial Bird Specialist. Ministry of Water, Land and Air Protection

Appendix I

Financial Statement Form

Project # 04.W.Br.03

Financial Statement Form

	BUDGET		ACTUAL	
	BCRP	**Other**	**BCRP**	**Other**
INCOME				
Total Income by Source	38,275.00	17,900.00	38,275.00	17,900.00
Grand Total Income (BCRP + other)		56,175.00		56,175.00
EXPENSES				
Project Personnel				
Wages	0.00	17,750.00		17,750.00
Consultant Fees	22,000.00	0.00	13,720.00	
(List others as required)				
Technician Fees (BCCF)	11,475.00		10,225.00	
Materials & Equipment				
Equipment Rental	4,000.00		3,100.00	
Materials Purchased		150.00		150.00
Travel Expenses				
Permits				
(List others as required)				
Helicopter (including Fuel)			9,988.40	
Administration				
Office Supplies	800.00			
Photocopies & printing				
Postage				
(List others as required)				
Total Expenses	38,275.00	17,900.00	37,033.40	17,900.00
Grand Total Expenses (BCRP + other)		56,175.00		54,933.40
BALANCE (Grand Total Income – Grand Total Expenses)	*The budget balance should equal $0*	0.00	*The actual balance might not equal $0**	-1,241.16

* Any unspent BCRP financial contribution to be returned to: BC Hydro, BCRP
6911 Southpoint Drive (E14)
Burnaby, B.C. V3N 4X8
ATTENTION: JANICE DOANE

Appendix II

Performance Measures

Performance Measures

Using the performance measures applicable to your project, please indicate the amount of habitat actually restored/enhanced for each of the specified areas (e.g. riparian, tributary, mainstream).

Performance Measures – Target Outcomes												
Project Type	Primary habitat benefit targeted of project (m2)	Primary Target Species	Estuarine	In-stream Habitat – Mainstream	In-stream Habitat – Tributary	Riparian	Reservoir Shoreline Complexes	Riverine	Lowland Deciduous	Lowland Coniferous	Upland	Wetland
Impact Mitigation												
Fish passage technologies	Area of habitat made available to target species											
Drawdown zone revegetation/stabilization	Area turned into productive habitat											
Wildlife migration improvement	Area of habitat made available to target species											
Prevention of drowning of nests, nestlings	Area of wetland habitat created outside expected flood level (1:10 year)											
Habitat Conservation												
Habitat conserved – general	Functional habitat conserved/replaced through acquisition and management	Northern Spotted Owl								*	*	
	Functional habitat conserved by other measures (e.g. riprapping)											
Designated rare/special habitat (subset)	Rare/special habitat protected	Northern Spotted Owl								*	*	
Maintain or Restore Habitat forming process												
Artificial gravel recruitment	Area of stream habitat improved by gravel placement											
Artificial wood debris recruitment	Area of stream habitat improved by LWD placement											
Small-scale complexing in existing habitats	Area increase in functional habitat through complexing											
Prescribed burns or other upland habitat enhancement for wildlife	Functional area of habitat improved											
Habitat Development												
New habitat created	Functional area created											

*Please note: Due to the socio-economic impacts associated with this targeted species, consultation between various government and non-government agencies is required prior to management decisions that may lead to habitat protection and management. Therefore, results represented as performance measures will not be achieved in the short term.
The recommendation (see section 7. Management Recommendations) is to protect 3200ha (32,000,000m^3) to accommodate any identified Spotted Owl territories.

Performance Measures

Using the performance measures applicable to your project, please indicate the amount of habitat actually restored/enhanced for each of the specified areas (e.g. riparian, tributary, mainstream).

Performance Measures – Target Outcomes												
Project Type	Primary habitat benefit targeted of project (m2)	Primary Target Species	Estuarine	In-stream Habitat – Mainstream	In-stream Habitat – Tributary	Riparian	Reservoir Shoreline Complexes	Riverine	Lowland Deciduous	Lowland Coniferous	Upland	Wetland
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Fish passage technologies	Area of habitat made available to target species											
Drawdown zone revegetation/stabilization	Area turned into productive habitat											
Wildlife migration improvement	Area of habitat made available to target species											
Prevention of drowning of nests, nestlings	Area of wetland habitat created outside expected flood level (1:10 year)											
Habitat Conservation												
Habitat conserved – general	Functional habitat conserved/replaced through acquisition and management	Northern Spotted Owl								*	*	
	Functional habitat conserved by other measures (e.g. riprapping)											
Designated rare/special habitat (subset)	Rare/special habitat protected	Northern Spotted Owl								*	*	
Maintain or Restore Habitat forming process												
Artificial gravel recruitment	Area of stream habitat improved by gravel placement											
Artificial wood debris recruitment	Area of stream habitat improved by LWD placement											
Small-scale complexing in existing habitats	Area increase in functional habitat through complexing											
Prescribed burns or other upland habitat enhancement for wildlife	Functional area of habitat improved											
Habitat Development												
New habitat created	Functional area created											

*Please note: Due to the socio-economic impacts associated with this targeted species, consultation between various government and non-government agencies is required prior to management decisions that may lead to habitat protection and management. Therefore, results represented as performance measures will not be achieved in the short term.
The recommendation (see section 7. Management Recommendations) is to protect 3200ha (32,000,000m³) to accommodate any identified Spotted Owl territories.

Appendix III

Confirmation of BCRP Recognition

The BCRP logo and financial support was displayed on the opening slide of the project PowerPoint presentation. The BCRP logo was also displayed on all posters advertising the presentations (copy attached). Presentations for the Lillooet area were additionally promoted through the community radio station.

Come and enjoy an educational evening on the Northern Spotted Owl

Thursday August 19th
@ 7:30pm at the Lillooet Friendship Center,
357 Main St., Lillooet

This event is organized with the help of the Lillooet Naturalist Society.
Funding is provided by:

BC HYDRO FISH & WILDLIFE
BRIDGE COASTAL RESTORATION PROGRAM

Appendix IV

Survey Data

Refer to Digital Excel Spreadsheet “BCRP Survey Data” for this information. This data is also available through the Ministry of Water, Land and Air Protection.

Study_Area_Data

Study Area Name	Location Description	Comments	Total Minutes Survey 1	Total Minutes Survey 2	Total Minutes Survey 3
Anderson West Side Upper	Survey start point is located sw of McGillvary Creek on the Highline Road. The transect runs east bound along Highline Rd towards Seton/Portage. Suitable habitat on both sides of road - particularly at McGillvary Creek and Blackwater.	Station labels: SPN	255	222	255
Anderson Lake West Lower	Survey start point on Seton Portage Rd and runs south towards D'arcy; end point is located on the hydro line maintenance rd.	Station labels: SPA	240	240	240
Anderson East Side Upper	Bounded by cliffs on north and south sides - transect is south of Lost Valley and follows the ridge for approx 1.2 km at approx 900m in elevation.	Station labels: AU	160	135	126
Anderson East Side Lake Lower	Hiking transect along a bench on the east side of the valley along Anderson Lake.	Station labels: AL	179	157	
Anderson Lake Eastside Middle	Survey is located along the south ridge of Anderson; conducted a spotcheck on the westside of an unnamed valley.	Station labels: AM	175		
Seton Lake	Transect follows powerlines above Seton Lake on logging rd through suitable habitat. Transect is located off Copper Creek rd. Some disturbance due to fire.	Station labels: SL	160	170	165
Lost Valley	A 1.5 km transect along the north face of Lost Valley, including 1 km over the east fork. Transect ends at the confluence.	Station labels: LVB	137	175	145
Carpenter Lake1	Transect begins 8km north of the Carpenter Lake dam and continues south towards the dam following the lake.	Station labels: C	255	240	225
Carpenter Lake2	Transect begins 50m east of Marshall Lake Rd and travels west along Carpenter Lake Rd. Transect ends before kilometer marking for Gold Bridge.	Station labels: CB	255	240	255

Study_Area_Data

Study Area Name	Location Description	Comments	Total Minutes Survey 1	Total Minutes Survey 2	Total Minutes Survey 3
Carpenter Lake3	Transect begins approx 5km west of Marshall Lake Rd and continues east along Carpenter Lake Rd. The last station is located past the 76km mark on the road. Suitable habitat on both sides of road.	Station labels: CC	270	227	263
Carpenter Lake4	Transect begins approx 5-6km west of Marshall Rd and continues west on Carpenter Lake Rd. Suitable habitat on both sides of the lake. Transect ends near Tyaughton Creek bridge.	Station labels: CD	270	255	255
Carpenter Lake5	Transect begins approx 300m east of Gun Creek on Carpenter Lake Rd. There is a 2km gap between stations 8 and 9 due to lack of suitable habitat - otherwise there is suitable habitat on both sides of the lake.	Station labels: CE	240	255	240
Bridge River	Transect begins approx 300m west of Yalakam River bridge on Bridge River Rd. Transect runs southwest with several gaps in distance between stations due to lack of suitable habitat. Transect ends appox 1.5km before the dam at Carpenter Lake.	Station labels: BR	255	255	255
		BCRP Total Minutes	7788		

Key

Field	Code
Call Time	time in 24 hour
Response Time	time in 24 hour
Call Duration	time in minutes
Call Type	TD
Call Type	A
Distance to Owl	distnace in meters
Projected UTM	UTM - NAD 83
Age Class	A
Age Class	J
Sex	M
Sex	F
Owl Movements	

Key

Meaning
Time of first detected response
Time (minutes) elapsed between station start time (first call) and first detected response from owl
Duration (minutes) of owl vocalization
Teritorial
Alarm
Distance (in metres) from the station to the calling owl
Projected coordinate of the owls estimated location (based on distance and bearing)
Adult
Juvenille
Male
Female
Comments on the owls movements, relative to the station, for the duration of the owls response activity

Observations_ BCRP

Survey Name	Station Label	Date	Station Time Start	Staton Time End	Time at Station (min)	Observer 1	Observer 2	Zone	Easting	Northing	Species	Count	Owl Zone	Owl Easting	Owl Northing	Form Number	Call Time	Response Time (min)	Call Duration (min)	Call Type	Visual or Accoustic (V/A)	Direction of Call (degrees)	Distance to Owl (meters)	date	Comments
Anderson Lake West Lower	SPA1	15/7/2004	2140	2155	15	JD	VY	10	539649	5609173	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA2	15/7/2004	2158	2213	15	JD	VY	10	539600	5608643	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA3	15/7/2004	2215	2230	15	JD	VY	10	539418	5608040	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA4	15/7/2004	2233	2248	15	JD	VY	10	538991	5608062	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA5	15/7/2004	2250	2305	15	JD	VY	10	538501	5608207	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA6	15/7/2004	2308	2323	15	JD	VY	10	538750	5607610	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA7	15/7/2004	2325	2340	15	JD	VY	10	538860	5607133	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA8	15/7/2004	2343	2358	15	JD	VY	10	538711	5605865	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA9	15/7/2004	0000	0015	15	JD	VY	10	538338	5605428	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA10	15/7/2004	0018	0033	15	JD	VY	10	538112	5604951	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA11	15/7/2004	0037	0052	15	JD	VY	10	536984	5603068	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA12	15/7/2004	0053	0108	15	JD	VY	10	536749	5602567	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA13	15/7/2004	0110	0125	15	JD	VY	10	539612	5602107	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA14	15/7/2004	0127	0142	15	JD	VY	10	539500	5601440	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA15	15/7/2004	0145	0200	15	JD	VY	10	536075	5600697	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA16	15/7/2004	0202	0217	15	JD	VY	10	535873	5600214	null	null	null	null	null	null	null	null	null	null	null	null	null	15/7/2004	
Anderson Lake West Lower	SPA1	21/7/2004	2140	2155	15	JD	VY	10	539649	5609173	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA2	21/7/2004	2157	2212	15	JD	VY	10	539600	5608643	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA3	21/7/2004	2214	2229	15	JD	VY	10	539418	5608141	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA4	21/7/2004	2232	2247	15	JD	VY	10	538991	5608062	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA5	21/7/2004	2248	2303	15	JD	VY	10	538501	5608207	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA6	21/7/2004	2305	2320	15	JD	VY	10	538750	5607610	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA7	21/7/2004	2321	2336	15	JD	VY	10	538860	5607133	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA8	21/7/2004	2339	2354	15	JD	VY	10	538711	5605865	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA9	21/7/2004	2356	0011	15	JD	VY	10	538338	5605428	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA10	21/7/2004	0014	0029	15	JD	VY	10	538122	5604951	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA11	21/7/2004	0033	0048	15	JD	VY	10	536984	5603068	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA12	21/7/2004	0049	0104	15	JD	VY	10	536749	5602567	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA13	21/7/2004	0105	0120	15	JD	VY	10	536612	5602107	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA14	21/7/2004	0122	0137	15	JD	VY	10	536500	5601440	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA15	21/7/2004	0144	0159	15	JD	VY	10	536075	5600697	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA16	21/7/2004	0203	0218	15	JD	VY	10	535873	5600214	null	null	null	null	null	null	null	null	null	null	null	null	null	21/7/2004	
Anderson Lake West Lower	SPA1	29/7/2004	2130	2145	15	JD	VY	10	539649	5609173	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson Lake West Lower	SPA2	29/7/2004	2147	2202	15	JD	VY	10	539600	5608643	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson Lake West Lower	SPA3	29/7/2004	2203	2218	15	JD	VY	10	539418	5608141	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson Lake West Lower	SPA4	29/7/2004	2219	2234	15	JD	VY	10	538991	5608062	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson Lake West Lower	SPA5	29/7/2004	2236	2251	15	JD	VY	10	538501	5608207	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson Lake West Lower	SPA6	29/7/2004	2255	2310	15	JD	VY	10	538750	5607610	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson Lake West Lower	SPA7	29/7/2004	2311	2326	15	JD	VY	10	538860	5607133	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson Lake West Lower	SPA8	29/7/2004	2329	2344	15	JD	VY	10	538711	5605865	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson Lake West Lower	SPA9	29/7/2004	2345	0000	15	JD	VY	10	538338	5605428	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson Lake West Lower	SPA10	29/7/2004	0001	0016	15	JD	VY	10	538122	5604951	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson Lake West Lower	SPA11	29/7/2004	0020	0035	15	JD	VY	10	536984	5603068	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson Lake West Lower	SPA12	29/7/2004	0036	0051	15	JD	VY	10	536749	5602567	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson Lake West Lower	SPA13	29/7/2004	0052	0107	15	JD	VY	10	536612	5602107	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson Lake West Lower	SPA14	29/7/2004	0110	0125	15	JD	VY	10	536500	5601440	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson Lake West Lower	SPA15	29/7/2004	0131	0146	15	JD	VY	10	536075	5600697	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson Lake West Lower	SPA16	29/7/2004	0150	0205	15	JD	VY	10	535873	5600214	null	null	null	null	null	null	null	null	null	null	null	null	null	29/7/2004	
Anderson West Side Upper	SPN1	05/03/2004	0101	0116	15	VY	EJ	10	545632	5615052	null	null	null	null	null	null	null	null	null	null	null	null	null	05/03/2004	
Anderson West Side Upper	SPN2	05/03/2004	0042	0057	15	VY	EJ	10	545220	5614800	null	null	null	null	null	null	null	null	null	null	null	null	null	05/03/2004	
Anderson West Side Upper	SPN3	05/03/2004	0025	0039	15	VY	EJ	10	544725	5614545	null	null	null	null	null	null	null	null	null	null	null	null	null	05/03/2004	
Anderson West Side Upper	SPN4	05/03/2004	0006	0021	15	VY	EJ	10	544251	5614273	null	null	null	null	null	null	null	null	null	null	null	null	null	05/03/2004	
Anderson West Side Upper	SPN5	05/03/2004	2348	0003	15	VY	EJ	10	543889	5614363	null	null	null	null	null	null	null	null	null	null	null	null	null	05/03/2004	
Anderson West Side Upper	SPN6	05/03/2004	2332	2347	15	VY	EJ	10	543723	5613991	null	null	null	null	null	null	null	null	null	null	null	null	null	05/03/2004	
Anderson West Side Upper	SPN7	05/03/2004	2315	2330	15	VY	EJ	10	543508	5613652	null	null	null	null	null	null	null	null	null	null	null	null	null	05/03/2004	
Anderson West Side Upper	SPN8	05/03/2004	2259	2314	15	VY	EJ	10	543116	5613292	null	null	null	null	null	null	null	null	null	null	null	null	null	05/03/2004	
Anderson West Side Upper	SPN9	05/03/2004	2242	2257	15	VY	EJ	10	542789	5612897	null	null	null	null	null	null	null	null	null	null	null	null	null	05/03/2004	
Anderson West Side Upper	SPN10	05/03/2004	2226	2241	15	VY	EJ	10	540788	5611041	null	null	null	null	null	null	null	null	null	null	null	null	null	05/03/2004	
Anderson West Side Upper	SPN11	05/03/2004	2209	2224	15	VY	EJ	10	541542	5610750	NSOW	1	10	540717	5611217	AN 03-05	2018	9	4	TD	A	21	500	05/03/2004	
Anderson West Side Upper	SPN12	05/03/2004	2153	2208	15	VY	EJ	10	540075	5610210	null	null	null	null	null	null	null	null	null	null	null	null	null	05/03/2004	
Anderson West Side Upper	SPN13	05/03/2004	2137	2152	15	VY	EJ	10	539917	5609525	null	null	null	null	null	null	null	null	null	null	null	null	null	05/03/2004	
Anderson West Side Upper	SPN14	05/03/2004	2120	2135	15	VY	EJ	10	539597	5609020	null	null	null	null	null	null	null	null	null	null	null	null	null	05/03/2004	
Anderson West Side Upper	SPN15	05/03/2004	2104	2119	15	VY	EJ	10	539530	5608395	NPOW	1	10	539365	5558493	AN 03-05	2003	9	1	TD	A	300	200	05/03/2004	
Anderson West Side Upper	SPN16	05/03/2004	2047	2102	15	VY	EJ	10	538950	5608056	null	null	null	null	null	null	null	null	null	null	null	null	null	05/03/2004	

Observations_ BCRP

Survey Name	Station Label	Date	Station Time Start	Staton Time End	Time at Station (min)	Observer 1	Observer 2	Zone	Easting	Northing	Species	Count	Owl Zone	Owl Easting	Owl Northing	Form Number	Call Time	Response Time (min)	Call Duration (min)	Call Type	Visual or Accoustic (V/A)	Direction of Call (degrees)	Distance to Owl (meters)	date	Comments
Anderson West Side Upper	SPN17	05/03/2004	2030	2045	15	VY	EJ	10	538330	5608163	null	null	null	null	null	null	null	null	null	null	null	null	null	05/03/2004	
Anderson West Side Upper	SPN2	06/04/2004	0219	0234	15	VY	JH	10	545335	5614878	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Anderson West Side Upper	SPN3	06/04/2004	0201	0216	15	VY	JH	10	544823	5614567	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Anderson West Side Upper	SPN4	06/04/2004	0150	0158	8	VY	JH	10	544069	5614286	GHOW	1	10	543814	5613978	SPN 04-06	0151	1	null	TD	A	220	400	06/04/2004	skipped station due to GHOW
Anderson West Side Upper	SPN5	06/04/2004	0128	0143	15	VY	JH	10	543723	5614195	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Anderson West Side Upper	SPN6	06/04/2004	0110	0125	15	VY	JH	10	543547	5613677	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Anderson West Side Upper	SPN7	06/04/2004	0052	0107	15	VY	JH	10	543181	5613307	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Anderson West Side Upper	SPN8	06/04/2004	0034	0049	15	VY	JH	10	542806	5612917	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Anderson West Side Upper	SPN9	06/04/2004	0009	0028	19	VY	JH	10	542451	5612572	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Anderson West Side Upper	SPN10	06/04/2004	2348	0004	15	VY	JH	10	542162	5612250	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Anderson West Side Upper	SPN11	06/04/2004	2330	2345	15	VY	JH	10	541728	5611697	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Anderson West Side Upper	SPN12	06/04/2004	2312	2327	15	VY	JH	10	541375	5611225	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Anderson West Side Upper	SPN13	06/04/2004	2252	2307	15	VY	JH	10	540924	5611080	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Anderson West Side Upper	SPN14	06/04/2004	2234	2249	15	VY	JH	10	540565	5610666	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Anderson West Side Upper	SPN15	06/04/2004	2215	2230	15	VY	JH	10	540198	5610371	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Anderson West Side Upper	SPN17	06/04/2004	2146	2201	15	VY	JH	10	539935	5609546	GHOW	1	10	539560	5609407	SPN 04-06	2101	0	.5	TD	A	250	400	06/04/2004	owl called before start of station
Anderson West Side Upper	SPN17	06/04/2004	2146	2201	0	VY	JH	10	539935	5609546	NSOW	1	10	539299	5609837	SPN 04-06	2201	14	2	TD	A	295	700	06/04/2004	
Anderson West Side Upper	SPN1	16/6/2004	2130	2145	15	JG	VY	10	545648	5615042	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2004	
Anderson West Side Upper	SPN2	16/6/2005	2147	2202	15	JG	VY	10	545335	5614878	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2005	
Anderson West Side Upper	SPN3	16/6/2006	2204	2219	15	JG	VY	10	544823	5614374	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2006	
Anderson West Side Upper	SPN4	16/6/2007	2221	2236	15	JG	VY	10	544307	5614374	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2007	
Anderson West Side Upper	SPN5	16/6/2008	2238	2253	15	JG	VY	10	544069	5614286	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2008	
Anderson West Side Upper	SPN6	16/6/2009	2256	2311	15	JG	VY	10	543723	5614195	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2009	
Anderson West Side Upper	SPN7	16/6/2010	2314	2329	15	JG	VY	10	543547	5613677	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2010	
Anderson West Side Upper	SPN8	16/6/2011	2331	2346	15	JG	VY	10	543181	5613306	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2011	
Anderson West Side Upper	SPN9	16/6/2012	2349	0004	15	JG	VY	10	542451	5612572	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2012	
Anderson West Side Upper	SPN10	16/6/2013	0006	0021	15	JG	VY	10	452162	5612250	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2013	
Anderson West Side Upper	SPN11	16/6/2014	0023	0038	15	JG	VY	10	451728	5611697	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2014	
Anderson West Side Upper	SPN12	16/6/2015	0039	0054	15	JG	VY	10	541375	5611225	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2015	
Anderson West Side Upper	SPN13	16/6/2016	0055	0110	15	JG	VY	10	540924	5611080	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2016	
Anderson West Side Upper	SPN14	16/6/2017	0111	0126	15	JG	VY	10	540565	5610666	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2017	
Anderson West Side Upper	SPN15	16/6/2018	0127	0142	15	JG	VY	10	540198	5610371	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2018	
Anderson West Side Upper	SPN16	16/6/2019	0144	0159	15	JG	VY	10	540088	5609986	null	null	null	null	null	null	null	null	null	null	null	null	null	16/6/2019	
Anderson West Side Upper	SPN17	16/6/2020	0200	0215	15	JG	VY	10	539917	5609525	NSOW	1	10	540304	5609441	SPN 06-16	0207	7	8	TD	V	95	400	16/6/2020	
Anderson Eastside Upper	AU1	31/5/2004	2015	2115	60	JD	JH	10	542431	5605680	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Anderson Eastside Upper	AU2	31/5/2004	2120	2150	30	JD	JH	10	542374	5605455	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	found white wash
Anderson Eastside Upper	AU3	31/5/2004	2200	2230	30	JD	JH	10	542363	5605265	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Anderson Eastside Upper	AU4	31/5/2004	2240	2255	15	JD	JH	10	542211	5605097	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Anderson Eastside Upper	AU5	31/5/2004	2310	2320	10	JD	JH	10	542160	5605045	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Anderson Eastside Upper	AU6	31/5/2004	0050	0105	15	JD	JH	10	542004	5604851	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Anderson Eastside Upper	AU1A	17/6/2004	2100	2215	75	JH	LD	10	542392	5605633	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Anderson Eastside Upper	AU2A	17/6/2004	2237	2252	15	JH	LD	10	542374	5605455	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Anderson Eastside Upper	AU3A	17/6/2004	2325	2340	15	JH	LD	10	542363	5605265	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Anderson Eastside Upper	AU1	17/6/2004	0010	0025	15	JH	LD	10	542123	5605043	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Anderson Eastside Upper	AU6A	17/6/2004	0030	0045	15	JH	LD	10	542004	5604851	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Anderson Eastside Upper	AU1	07/11/2004	2130	2145	15	JH	LD	10	542430	5605711	null	null	null	null	null	null	null	null	null	null	null	null	null	07/11/2004	
Anderson Eastside Upper	AU2	07/11/2004	2154	2209	15	JH	LD	10	542408	5605504	null	null	null	null	null	null	null	null	null	null	null	null	null	07/11/2004	
Anderson Eastside Upper	AU3	07/11/2004	2219	2234	15	JH	LD	10	542422	5605285	null	null	null	null	null	null	null	null	null	null	null	null	null	07/11/2004	
Anderson Eastside Upper	AU4	07/11/2004	2245	2321	36	JH	LD	10	542354	5605124	SPOW	1	10	542513	5604445	AU 11-07	2251	6	.5	TD	A	168	700	07/11/2004	possible direction of SPOW at 350 degrees
Anderson Eastside Upper	AU5	07/11/2004	2335	2350	15	JH	LD	10	542283	5604969	null	null	null	null	null	null	null	null	null	null	null	null	null	07/11/2004	
Anderson Eastside Upper	AU6	07/11/2004	0014	0029	15	JH	LD	10	no position	no position	null	null	null	null	null	null	null	null	null	null	null	null	null	07/11/2004	no GPS position
Anderson Eastside Upper	AU7	07/11/2004	0040	0055	15	JH	LD	10	542278	5604525	null	null	null	null	null	null	null	null	null	null	null	null	null	07/11/2004	
Anderson Lake Eastside Middle	AM1	31/5/2004	2032	2145	73	VY	JM	10	541698	5602699	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Anderson Lake Eastside Middle	AM2	31/5/2004	2157	2212	15	VY	JM	10	541596	5602737	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Anderson Lake Eastside Middle	AM3	31/5/2004	2227	2239	12	VY	JM	10	541486	5602809	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Anderson Lake Eastside Middle	AM4	31/5/2004	2259	2309	10	VY	JM	10	541424	5602941	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Anderson Lake Eastside Middle	AM5	31/5/2004	2341	0016	35	VY	JM	10	541236	5603062	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Anderson Lake Eastside Middle	AM6	31/5/2004	0034	0054	20	VY	JM	10	541165	5603164	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Anderson Lake Eastside Middle	AM7	31/5/2004	0113	0123	10	VY	JM	10	541150	5603191	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	2 or 3 flying squirrels at camp
Anderson Lake Eastside Lower	AL1	17/6/2004	2050	2135	45	VY	JM	10	540658	5602380	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Anderson Lake Eastside Lower	AL2	17/6/2004	2150	2205	15	VY	JM	10	541437	5602239	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Anderson Lake Eastside Lower	AL3	17/6/2004	2229	2244	15	VY	JM	10	540229	5602118	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Anderson Lake Eastside Lower	AL4	17/6/2004	2301	2316	15	VY	JM	10	540086	5601885	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Anderson Lake Eastside Lower	AL5	17/6/2004	2331	2346	15	VY	JM	10	540006	5601638	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	

Survey Name	Station Label	Date	Station Time Start	Staton Time End	Time at Station (min)	Observer 1	Observer 2	Zone	Easting	Northing	Species	Count	Owl Zone	Owl Easting	Owl Northing	Form Number	Call Time	Response Time (min)	Call Duration (min)	Call Type	Visual or Accoustic (V/A)	Direction of Call (degrees)	Distance to Owl (meters)	date	Comments
Anderson Lake Eastside Lower	AL6	17/6/2004	0017	0032	15	VY	JM	10	539879	5601264	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Anderson Lake Eastside Lower	AL7	17/6/2004	0041	0053	12	VY	JM	10	539864	5601114	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Anderson Lake Eastside Lower	AL8	17/6/2004	0113	0200	47	VY	JM	10	539964	5601476	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Anderson Lake Eastside Lower	AL1	11/07/2004	2116	2001	45	VY	JD	10	540653	5602371	null	null	null	null	null	null	null	null	null	null	null	null	null	07/11/2004	
Anderson Lake Eastside Lower	AL2	11/07/2004	2012	2027	15	VY	JD	10	540473	5602215	null	null	null	null	null	null	null	null	null	null	null	null	null	07/11/2004	
Anderson Lake Eastside Lower	AL3	11/07/2004	2042	2057	15	VY	JD	10	540286	5602080	null	null	null	null	null	null	null	null	null	null	null	null	null	07/11/2004	
Anderson Lake Eastside Lower	AL4	11/07/2004	2310	2325	15	VY	JD	10	540124	5601871	null	null	null	null	null	null	null	null	null	null	null	null	null	07/11/2004	
Anderson Lake Eastside Lower	AL5	11/07/2004	2340	2355	15	VY	JD	10	540018	5601642	null	null	null	null	null	null	null	null	null	null	null	null	null	07/11/2004	
Anderson Lake Eastside Lower	AL6	11/07/2004	0011	0026	15	VY	JD	10	539879	5601264	null	null	null	null	null	null	null	null	null	null	null	null	null	07/11/2004	
Anderson Lake Eastside Lower	AL7	11/07/2004	0033	0045	12	VY	JD	10	539864	5601114	null	null	null	null	null	null	null	null	null	null	null	null	null	07/11/2004	edge of gully
Anderson Lake Eastside Lower	AL8	11/07/2004	0055	0120	25	VY	JD	10	539966	5601448	null	null	null	null	null	null	null	null	null	null	null	null	null	07/11/2004	
Seton Lake	SL1	05/11/2004	2141	2002	15	VY	JD	10	562066	5614428	BDOW	1	10	562286	5614224	SL 11-05	2159	18	1	TD	A	134	300	05/11/2004	adult male
Seton Lake	SL2	05/11/2004	2011	2021	10	VY	JD	10	562500	5614277	BDOW	2	10	563007	5614116	SL 11-05	2211	0	1	TD	A	108	500	05/11/2004	adult male and female
Seton Lake	SL3	05/11/2004	2028	2045	15	VY	JD	10	562916	5614115	null	null	null	null	null	null	null	null	null	null	null	null	null	05/11/2004	
Seton Lake	SL4	05/11/2004	2251	2306	15	VY	JD	10	563363	5613999	BDOW	1	10	N/A	N/A	SL 11-5	2252	1	11	TD	A	null	null	05/11/2004	adult male
Seton Lake	SL5	05/11/2004	2316	2331	15	VY	JD	10	536755	5613976	BDOW	1	10	563633	5613759	SL 11-05	2312	0	4	TD	A	210	250	05/11/2004	adult male
Seton Lake	SL6	05/11/2004	2339	2354	15	VY	JD	10	564256	5613976	BDOW	1	10	N/A	N/A	SL 11-05	2350	11	3	TD	A	null	null	05/11/2004	BDOW followed from SL5
Seton Lake	SL7	05/11/2004	0009	0024	15	VY	JD	10	564604	5613706	null	null	null	null	null	null	null	null	null	null	null	null	null	05/11/2004	
Seton Lake	SL8	05/11/2004	0030	0045	15	VY	JD	10	565770	5613669	null	null	null	null	null	null	null	null	null	null	null	null	null	05/11/2004	
Seton Lake	SL9	05/11/2004	0045	0101	15	VY	JD	10	565312	5613102	null	null	null	null	null	null	null	null	null	null	null	null	null	05/11/2004	
Seton Lake	SL10	05/11/2004	0102	0117	15	VY	JD	10	565728	5613205	BDOW	1	10	N/A	N/A	SL 11-05	0113	11	null	TD	A	null	null	05/11/2004	adult male
Seton Lake	SL11	05/11/2004	0119	0134	15	VY	JD	10	565458	5612822	null	null	null	null	null	null	null	null	null	null	null	null	null	05/11/2004	
Seton Lake	SL1	06/04/2004	2148	2203	15	JG	LD	10	562066	5614428	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Seton Lake	SL2	06/04/2004	2211	2226	15	JG	LD	10	562500	5614277	BDOW	2	10	562503	5614176	SL 04-06	2216	5	15	TD	A/V	180	150	06/04/2004	adult pair
Seton Lake	SL3	06/04/2004	null	null	0	JG	LD	10	562906	5614103	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	BDOW pair
Seton Lake	SL4	06/04/2004	2238	2253	15	JG	LD	10	563363	5613999	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	heard BDOW pair at end of station
Seton Lake	SL5	06/04/2004	2258	2313	15	JG	LD	10	536749	5613976	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	heard BDOW pair at end of station
Seton Lake	SL6	06/04/2004	2320	2335	15	JG	LD	10	564259	5613976	BDOW	1	10	564259	5613976	SL 04-05	2330	10	15	TD	V	0	0	06/04/2004	
Seton Lake	SL7	06/04/2004	null	null	0	JG	LD	10	564604	5613706	BDOW	1	10	564505	5614211	SL 04-05	2347	null	null	TD	A	0	500	06/04/2004	male
Seton Lake	SL8	06/04/2004	0002	0017	15	JG	LD	10	565770	5613664	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Seton Lake	SL9	06/04/2004	0022	0037	15	JG	LD	10	565314	5613103	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Seton Lake	SL10	06/04/2004	0041	0049	15	JG	LD	10	565700	5613177	BDOW	1	10	565052	5613645	SL 04-06	0048	7	10	TD	A	307	800	06/04/2004	male
Seton Lake	SL11	06/04/2004	0056	0112	15	JG	LD	10	565700	5613177	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	
Seton Lake	SL12	06/04/2004	0118	0132	15	JG	LD	10	564307	5612432	BDOW	1	10	565052	5613645	SL 04-06	0018	2	null	TD	A	330	1200	06/04/2004	male
Seton Lake	SL13	06/04/2004	0150	0210	20	JG	LD	10	563859	5609387	null	null	null	null	null	null	null	null	null	null	null	null	null	06/04/2004	spot check for Copper bird
Seton Lake	SL1	26/7/2004	2133	2148	15	VY	JD	10	562066	5614428	null	null	null	null	null	null	null	null	null	null	null	null	null	26/7/2004	
Seton Lake	SL2	26/7/2004	2155	2010	15	VY	JD	10	562500	5614277	null	null	null	null	null	null	null	null	null	null	null	null	null	26/7/2004	
Seton Lake	SL3	26/7/2004	2014	2029	15	VY	JD	10	562916	5614115	BDOW	1	10	563364	5613894	SL 26-07	2214	.5	8	TD	A	117	500	26/7/2004	adult male
Seton Lake	SL4	26/7/2004	2235	2250	15	VY	JD	10	563363	5613999	BDOW	1	10	563364	5613894	SL 26-07	2227	13	1	TD	A	117	500	26/7/2004	adult female - rock calls; BDOW from SL3
Seton Lake	SL5	26/7/2004	2256	2311	15	VY	JD	10	536752	5613969	BDOW	1	10	563011	5613832	SL 26-07	2226	12	2	TD	A	162	300	26/7/2004	adult male - from SL3
Seton Lake	SL6	26/7/2004	2317	2332	15	VY	JD	10	564271	5613958	null	null	null	null	null	null	null	null	null	null	null	null	null	26/7/2004	
Seton Lake	SL7	26/7/2004	2345	0000	15	VY	JD	10	564604	5613706	null	null	null	null	null	null	null	null	null	null	null	null	null	26/7/2004	
Seton Lake	SL8	26/7/2004	0032	0047	15	VY	JD	10	565666	5613764	null	null	null	null	null	null	null	null	null	null	null	null	null	26/7/2004	
Seton Lake	SL9	26/7/2004	0049	0104	15	VY	JD	10	565312	5613102	null	null	null	null	null	null	null	null	null	null	null	null	null	26/7/2004	fire disturbance present
Seton Lake	SL10	26/7/2004	0049	0104	15	VY	JD	10	565728	5613205	BDOW	1	10	565088	5613492	SL 26-07	0055	6	1	TD	A	295	700	26/7/2004	adult male
Seton Lake	SL11	26/7/2004	0105	0120	15	VY	JD	10	565728	5613205	null	null	null	null	null	null	null	null	null	null	null	null	null	26/7/2004	
Lost Valley	LVB1	05/01/2004	2015	2030	15	JH	VY	10	547552	5610464	NPOW	1	10	547618	5610863	LVB 01-05	1900	0	40	TD	A	350	400	05/01/2004	adult male calling before start
Lost Valley	LVB2	05/01/2004	2037	2052	15	JH	VY	10	547674	5610554	null	null	null	null	null	null	null	null	null	null	null	null	null	05/01/2004	
Lost Valley	LVB3	05/01/2004	2058	2110	12	JH	VY	10	547703	5610647	null	null	null	null	null	null	null	null	null	null	null	null	null	05/01/2004	
Lost Valley	LVB4	05/01/2004	2126	2136	10	JH	VY	10	547769	5610867	null	null	null	null	null	null	null	null	null	null	null	null	null	05/01/2004	
Lost Valley	LVB5	05/01/2004	2209	2229	20	JH	VY	10	547867	5611264	null	null	null	null	null	null	null	null	null	null	null	null	null	05/01/2004	
Lost Valley	LVB6	05/01/2004	2301	2316	15	JH	VY	10	547975	5611453	null	null	null	null	null	null	null	null	null	null	null	null	null	05/01/2004	
Lost Valley	LVB7	05/01/2004	2339	2349	10	JH	VY	10	548190	5611498	null	null	null	null	null	null	null	null	null	null	null	null	null	05/01/2004	
Lost Valley	LVB8	05/01/2004	0010	0025	15	JH	VY	10	548345	5611615	null	null	null	null	null	null	null	null	null	null	null	null	null	05/01/2004	
Lost Valley	LVB9	05/01/2004	0040	0055	15	JH	VY	10	548258	5611806	null	null	null	null	null	null	null	null	null	null	null	null	null	05/01/2004	
Lost Valley	LVB10	05/01/2004	0114	0124	10	JH	VY	10	548172	5612007	NSOW	1	10	547525	5612240	LVB 01-05	0122	8	continuous	TD	A	281	450	05/01/2004	adult male
Lost Valley	LVB1	31/5/2004	2055	2105	10	JG	SS	10	547608	5610397	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Lost Valley	LVB2	31/5/2004	2117	2127	10	JG	SS	10	547711	5610565	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Lost Valley	LVB3	31/5/2004	2135	2145	10	JG	SS	10	547752	5610670	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Lost Valley	LVB4	31/5/2004	2156	2206	10	JG	SS	10	547836	5610849	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Lost Valley	LVB5	31/5/2004	2231	2241	10	JG	SS	10	547924	5611144	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Lost Valley	LVB6	31/5/2004	2313	2323	20	JG	SS	10	547996	5611437	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Lost Valley	LVB7	31/5/2004	2338	2348	10	JG	SS	10	548154	5611495	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Lost Valley	LVB8	31/5/2004	0026	0041	15	JG	SS	10	548548	5611394	NSOW	1	10	548461	5610709	LVB 31-05	0030	4	3	TD	A	190	600	31/5/2004	

Survey Name	Station Label	Date	Station Time Start	Staton Time End	Time at Station (min)	Observer 1	Observer 2	Zone	Easting	Northing	Species	Count	Owl Zone	Owl Easting	Owl Northing	Form Number	Call Time	Response Time (min)	Call Duration (min)	Call Type	Visual or Accoustic (V/A)	Direction of Call (degrees)	Distance to Owl (meters)	date	Comments
Lost Valley	LVB9	31/5/2004	0057	0107	10	JG	SS	10	548720	5611276	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Lost Valley	LVB10	31/5/2004	0125	0135	10	JG	SS	10	548352	5611620	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Lost Valley	LVB11	31/5/2004	0151	0201	10	JG	SS	10	no position	no position	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	no GPS coverage; approx 200m N of LVB10
Lost Valley	LVB12	31/5/2004	0217	0227	10	JG	SS	10	548213	5611860	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Lost Valley	LVB13	31/5/2004	0239	0249	10	JG	SS	10	no position	no position	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	no GPS coverage; approx 260m SE of LVB 11
Lost Valley	LVB14	31/5/2004	0300	0315	15	JG	SS	10	547877	5612254	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	talus slope
Lost Valley	LVB15	31/5/2004	0331	0346	15	JG	SS	10	547749	5612409	null	null	null	null	null	null	null	null	null	null	null	null	null	31/5/2004	
Lost Valley	LVB1	17/6/2004	2110	2120	10	JG	ST	10	547608	5610397	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Lost Valley	LVB2	17/6/2004	2131	2141	10	JG	ST	10	547711	5610565	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Lost Valley	LVB3	17/6/2004	2143	2153	10	JG	ST	10	547752	5610670	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Lost Valley	LVB4	17/6/2004	2159	2209	10	JG	ST	10	547836	5610849	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Lost Valley	LVB5	17/6/2004	2222	2232	10	JG	ST	10	547924	5611144	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Lost Valley	LVB6	17/6/2004	2255	2305	10	JG	ST	10	547996	5611437	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Lost Valley	LVB7	17/6/2004	2312	2322	10	JG	ST	10	548154	5611495	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Lost Valley	LVB8	17/6/2004	0030	0040	10	JG	ST	10	548720	5611276	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Lost Valley	LVB9	17/6/2004	0044	0054	10	JG	ST	10	548540	5611437	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Lost Valley	LVB10	17/6/2004	0101	0111	10	JG	ST	10	548352	5611620	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Lost Valley	LVB11	17/6/2004	0116	0126	10	JG	ST	10	548320	5611818	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Lost Valley	LVB12	17/6/2004	0151	0206	15	JG	ST	10	548146	5612053	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	2D navigation
Lost Valley	LVB13	17/6/2004	0010	0020	10	JG	ST	10	548146	5612053	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Lost Valley	LVB14	17/6/2004	0238	null	0	JG	ST	10	548167	5612143	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Lost Valley	LVB15	17/6/2004	0219	0229	10	JG	ST	10	547877	5612254	null	null	null	null	null	null	null	null	null	null	null	null	null	17/6/2004	
Carpenter Lake1	C1	06/09/2004	0203	0218	15	JH	VY	10	553608	5626109	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C2	06/09/2004	0147	0202	15	JH	VY	10	553055	5625678	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C3	06/09/2004	0131	0146	15	JH	VY	10	552411	5625281	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C4	06/09/2004	0115	0130	15	JH	VY	10	551897	5624878	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C5	06/09/2004	0059	0114	15	JH	VY	10	551318	5624535	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C6	06/09/2004	0043	0058	15	JH	VY	10	550739	5624284	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C7	06/09/2004	0027	0042	15	JH	VY	10	550093	5624267	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C8	06/09/2004	0011	0026	15	JH	VY	10	569825	5624712	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C9	06/09/2004	2355	0010	15	JH	VY	10	549277	5624912	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C10	06/09/2004	2339	2354	15	JH	VY	10	548724	5625037	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C11	06/09/2004	2322	2337	15	JH	VY	10	548157	5625258	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C12	06/09/2004	2306	2321	15	JH	VY	10	547504	5625322	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C13	06/09/2004	2250	2305	15	JH	VY	10	546898	5625420	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C14	06/09/2004	2232	2247	15	JH	VY	10	546346	5625515	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C15	06/09/2004	2216	2231	15	JH	VY	10	546233	5626087	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C16	06/09/2004	2157	2213	15	JH	VY	10	545924	5626408	NPOW	1	10	546039	5626641	CL 08-06	2157	0	3	TD	A	22	250	06/09/2004	adult male
Carpenter Lake1	C17	06/09/2004	2140	2155	15	JH	VY	10	545293	5626629	null	null	null	null	null	null	null	null	null	null	null	null	null	06/09/2004	
Carpenter Lake1	C1	23/6/2004	0223	0238	15	JH	VY	10	545280	5626623	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C2	23/6/2004	0207	0222	15	JH	VY	10	545750	5626445	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C3	23/6/2004	0151	0206	15	JH	VY	10	546206	5626218	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C4	23/6/2004	0134	0149	15	JH	VY	10	546319	5625577	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C5	23/6/2004	0117	0132	15	JH	VY	10	546778	5625354	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C6	23/6/2004	0101	0116	15	JH	VY	10	547282	5625378	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C7	23/6/2004	0044	0059	15	JH	VY	10	547890	5625246	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C8	23/6/2004	0027	0042	15	JH	VY	10	548416	5625238	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C9	23/6/2004	0010	0025	15	JH	VY	10	548847	5624960	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C10	23/6/2004	2354	0009	15	JH	VY	10	549475	5624914	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C11	23/6/2004	2338	2353	15	JH	VY	10	549924	5624582	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C12	23/6/2004	2322	2337	15	JH	VY	10	550349	5624220	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C13	23/6/2004	2306	2321	15	JH	VY	10	550855	5624345	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C14	23/6/2004	2250	2305	15	JH	VY	10	551331	5624541	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C15	23/6/2004	2233	2248	15	JH	VY	10	551891	5624861	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C16	23/6/2004	2217	2232	15	JH	VY	10	552268	5625237	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C18	23/6/2004	2200	2215	15	JH	VY	10	552858	5625538	null	null	null	null	null	null	null	null	null	null	null	null	null	23/6/2004	
Carpenter Lake1	C1	07/12/2004	2150	2205	15	JD	VY	10	545280	5626623	null	null	null	null	null	null	null	null	null	null	null	null	null	07/12/2004	
Carpenter Lake1	C2	07/12/2004	2220	2225	15	JD	VY	10	545750	5626445	null	null	null	null	null	null	null	null	null	null	null	null	null	07/12/2004	
Carpenter Lake1	C3	07/12/2004	2226	2241	15	JD	VY	10	546206	5626218	null	null	null	null	null	null	null	null	null	null	null	null	null	07/12/2004	
Carpenter Lake1	C4	07/12/2004	2243	2258	15	JD	VY	10	546319	5625577	null	null	null	null	null	null	null	null	null	null	null	null	null	07/12/2004	
Carpenter Lake1	C5	07/12/2004	2300	2315	15	JD	VY	10	546778	5625354	null	null	null	null	null	null	null	null	null	null	null	null	null	07/12/2004	
Carpenter Lake1	C6	07/12/2004	2316	2331	15	JD	VY	10	547282	5625378	null	null	null	null	null	null	null	null	null	null	null	null	null	07/12/2004	
Carpenter Lake1	C7	07/12/2004	2332	2347	15	JD	VY	10	547890	5625246	null	null	null	null	null	null	null	null	null	null	null	null	null	07/12/2004	
Carpenter Lake1	C8	07/12/2004	2348	0003	15	JD	VY	10	548416	5625238	null	null	null	null	null	null	null	null	null	null	null	null	null	07/12/2004	

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Survey Name	Station Label	Date	Station Time Start	Staton Time End	Time at Station (min)	Observer 1	Observer 2	Zone	Easting	Northing	Species	Count	Owl Zone	Owl Easting	Owl Northing	Form Number	Call Time	Response Time (min)	Call Duration (min)	Call Type	Visual or Accoustic (V/A)	Direction of Call (degrees)	Distance to Owl (meters)	date	Comments
Carpenter Lake1	C9	07/12/2004	0004	0019	15	JD	VY	10	548847	5624960	null	null	null	null	null	null	null	null	null	null	null	null	null	07/12/2004	
Carpenter Lake1	C10	07/12/2004	0021	0036	15	JD	VY	10	549475	5624914	null	null	null	null	null	null	null	null	null	null	null	null	null	07/12/2004	
Carpenter Lake1	C11	07/12/2004	0037	0052	15	JD	VY	10	549924	5624582	null	null	null	null	null	null	null	null	null	null	null	null	null	07/12/2004	
Carpenter Lake1	C12	07/12/2004	0053	0108	15	JD	VY	10	550349	5624220	null	null	null	null	null	null	null	null	null	null	null	null	null	07/12/2004	
Carpenter Lake1	C13	07/12/2004	0109	0124	15	JD	VY	10	550855	5624345	null	null	null	null	null	null	null	null	null	null	null	null	null	07/12/2004	
Carpenter Lake1	C14	07/12/2004	0126	0141	15	JD	VY	10	551331	5624541	null	null	null	null	null	null	null	null	null	null	null	null	null	07/12/2004	
Carpenter Lake1	C15	07/12/2004	0142	0157	15	JD	VY	10	551891	5624861	null	null	null	null	null	null	null	null	null	null	null	null	null	07/12/2004	
Carpenter Lake2	CB1	06/08/2004	2144	2159	15	VY	JM	10	544757	5626571	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB2	06/08/2004	2201	2216	15	VY	JM	10	544263	5626733	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB3	06/08/2004	2219	2234	15	VY	JM	10	543921	5627090	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB4	06/08/2004	2236	2251	15	VY	JM	10	543722	5627562	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB5	06/08/2004	2253	2308	15	VY	JM	10	543394	5627965	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB6	06/08/2004	2310	2325	15	VY	JM	10	542914	5628298	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB7	06/08/2004	2327	2342	15	VY	JM	10	542496	5628550	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB8	06/08/2004	2344	2359	15	VY	JM	10	542144	5628992	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB9	06/08/2004	0001	0016	15	VY	JM	10	541875	5629418	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB10	06/08/2004	0017	0032	15	VY	JM	10	541639	5629884	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB11	06/08/2004	0034	0049	15	VY	JM	10	541301	5630265	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB12	06/08/2004	0054	0109	15	VY	JM	10	541121	5630771	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB13	06/08/2004	0111	0126	15	VY	JM	10	540967	5631270	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB14	06/08/2004	0128	0143	15	VY	JM	10	540746	5631738	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB15	06/08/2004	0145	0157	15	VY	JM	10	540315	5632008	BDOW	1	10	540461	5632040	CB2 08-06	0105	5	4	whinney	A	78	150	06/08/2004	adult male
Carpenter Lake2	CB16	06/08/2004	0200	0215	15	VY	JM	10	539791	5632135	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB17	06/08/2004	0218	0233	15	VY	JM	10	539240	5632441	null	null	null	null	null	null	null	null	null	null	null	null	null	06/08/2004	
Carpenter Lake2	CB3	24/6/2004	0153	0205	15	VY	JM	10	543921	5627090	null	null	null	null	null	null	null	null	null	null	null	null	null	24/6/2004	
Carpenter Lake2	CB4	24/6/2004	0136	0151	15	VY	JM	10	543722	5627562	null	null	null	null	null	null	null	null	null	null	null	null	null	24/6/2004	
Carpenter Lake2	CB5	24/6/2004	0119	0134	15	VY	JM	10	543394	5627965	null	null	null	null	null	null	null	null	null	null	null	null	null	24/6/2004	
Carpenter Lake2	CB6	24/6/2004	0102	0117	15	VY	JM	10	542914	5628298	null	null	null	null	null	null	null	null	null	null	null	null	null	24/6/2004	
Carpenter Lake2	CB7	24/6/2004	0045	0100	15	VY	JM	10	542496	5628550	null	null	null	null	null	null	null	null	null	null	null	null	null	24/6/2004	
Carpenter Lake2	CB8	24/6/2004	0028	0043	15	VY	JM	10	542144	5628992	null	null	null	null	null	null	null	null	null	null	null	null	null	24/6/2004	
Carpenter Lake2	CB9	24/6/2004	0011	0026	15	VY	JM	10	541875	5629418	null	null	null	null	null	null	null	null	null	null	null	null	null	24/6/2004	
Carpenter Lake2	CB10	24/6/2004	2354	0009	15	VY	JM	10	541639	5629884	null	null	null	null	null	null	null	null	null	null	null	null	null	24/6/2004	
Carpenter Lake2	CB11	24/6/2004	2337	2352	15	VY	JM	10	541301	5630265	null	null	null	null	null	null	null	null	null	null	null	null	null	24/6/2004	
Carpenter Lake2	CB12	24/6/2004	2320	2335	15	VY	JM	10	541121	5630771	null	null	null	null	null	null	null	null	null	null	null	null	null	24/6/2004	
Carpenter Lake2	CB13	24/6/2004	2303	2318	15	VY	JM	10	540967	5631270	null	null	null	null	null	null	null	null	null	null	null	null	null	24/6/2004	
Carpenter Lake2	CB14	24/6/2004	2246	2301	15	VY	JM	10	540746	5631738	null	null	null	null	null	null	null	null	null	null	null	null	null	24/6/2004	
Carpenter Lake2	CB15	24/6/2004	2214	2244	30	VY	JM	10	540315	5632008	BDOW	1	10	540178	5632072	CB2 06-24	2220	6	.25	null	A	296	150	24/6/2004	adult male
Carpenter Lake2	CB16	24/6/2004	2157	2212	15	VY	JM	10	539791	5632135	null	null	null	null	null	null	null	null	null	null	null	null	null	24/6/2004	adult male from CB15 called twice
Carpenter Lake2	CB17	24/6/2004	2140	2155	15	VY	JM	10	539240	5632441	null	null	null	null	null	null	null	null	null	null	null	null	null	24/6/2004	
Carpenter Lake2	CB1	26/6/2004	0239	0254	15	VY	JM	10	544757	5626571	null	null	null	null	null	null	null	null	null	null	null	null	null	26/6/2004	
Carpenter Lake2	CB2	26/6/2004	0255	0310	15	VY	JM	10	544263	5626733	null	null	null	null	null	null	null	null	null	null	null	null	null	26/6/2004	
Carpenter Lake2	CB1	25/7/2004	0154	0209	15	JD	VY	10	544757	5626571	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB2	25/7/2004	0138	0153	15	JD	VY	10	544263	5626733	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB3	25/7/2004	0122	0137	15	JD	VY	10	543921	5627090	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB4	25/7/2004	0106	0121	15	JD	VY	10	543722	5627562	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB5	25/7/2004	0049	0104	15	JD	VY	10	543394	5627965	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB6	25/7/2004	0033	0048	15	JD	VY	10	542914	5628298	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB7	25/7/2004	0017	0032	15	JD	VY	10	542496	5628550	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB8	25/7/2004	0001	0016	15	JD	VY	10	542144	5628992	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB9	25/7/2004	2345	0000	15	JD	VY	10	541875	5629418	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB10	25/7/2004	2329	2344	15	JD	VY	10	541639	5629884	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB11	25/7/2004	2313	2328	15	JD	VY	10	541301	5630265	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB12	25/7/2004	2256	2311	15	JD	VY	10	541121	5630771	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB13	25/7/2004	2240	2255	15	JD	VY	10	540967	5631270	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB14	25/7/2004	2224	2239	15	JD	VY	10	540746	5631738	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB15	25/7/2004	2208	2223	15	JD	VY	10	540315	5632008	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB16	25/7/2004	2152	2207	15	JD	VY	10	539791	5632135	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake2	CB17	25/7/2004	2136	2151	15	JD	VY	10	539240	5632441	null	null	null	null	null	null	null	null	null	null	null	null	null	25/7/2004	
Carpenter Lake3	CC1	20/6/2004	0039	0054	15	VY	JM	10	538553	5632473	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	
Carpenter Lake3	CC2	20/6/2004	0039	0054	15	VY	JM	10	538046	5632526	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	
Carpenter Lake3	CC3	20/6/2004	0056	0111	15	VY	JM	10	537936	5633011	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	
Carpenter Lake3	CC4	20/6/2004	0114	0129	15	VY	JM	10	537637	5633378	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	creek noise
Carpenter Lake3	CC5	20/6/2004	0131	0146	15	VY	JM	10	537234	5633767	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	creek noise
Carpenter Lake3	CC6	20/6/2004	0148	0203	15	VY	JM	10	536838	5634061	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	

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Survey Name	Station Label	Date	Station Time Start	Staton Time End	Time at Station (min)	Observer 1	Observer 2	Zone	Easting	Northing	Species	Count	Owl Zone	Owl Easting	Owl Northing	Form Number	Call Time	Response Time (min)	Call Duration (min)	Call Type	Visual or Accoustic (V/A)	Direction of Call (degrees)	Distance to Owl (meters)	date	Comments
Carpenter Lake3	CC7	20/6/2004	0206	0221	15	VY	JM	10	535981	5634722	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	loud creek noise
Carpenter Lake3	CC8	20/6/2004	0223	0238	15	VY	JM	10	535646	5635138	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	loud creek noise
Carpenter Lake3	CC9	20/6/2004	0239	0254	15	VY	JM	10	535473	5635532	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	loud creek noise
Carpenter Lake3	CC10	20/6/2004	0002	0017	15	VY	JM	10	537750	5632443	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	
Carpenter Lake3	CC11	20/6/2004	2345	0000	15	VY	JM	10	537286	5632741	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	
Carpenter Lake3	CC12	20/6/2004	2327	2342	15	VY	JM	10	536755	5632936	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	
Carpenter Lake3	CC13	20/6/2004	2310	2325	15	VY	JM	10	536212	5633019	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	
Carpenter Lake3	CC14	20/6/2004	2253	2308	15	VY	JM	10	535729	5633240	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	
Carpenter Lake3	CC15	20/6/2004	2235	2250	15	VY	JM	10	535345	5633645	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	
Carpenter Lake3	CC16	20/6/2004	2217	2232	15	VY	JM	10	534820	5633880	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	
Carpenter Lake3	CC17	20/6/2004	2153	2215	15	VY	JM	10	534313	5633962	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	
Carpenter Lake3	CC18	20/6/2004	0302	0317	15	VY	JM	10	537439	5634479	null	null	null	null	null	null	null	null	null	null	null	null	null	20/6/2004	
Carpenter Lake3	CC1	07/01/2004	null	null	0	VY	JD	10	null	null	null	null	null	null	null	null	null	null	null	null	null	null	null	07/01/2004	did not complete station due to GHOW activit
Carpenter Lake3	CC2	07/01/2004	0155	0210	15	VY	JD	10	538032	5632536	GHOW	1	10	538032	5632536	CC 01-07	0202	7	null	null	V	null	null	07/01/2004	adult; GHOW flew into station - did not vocal
Carpenter Lake3	CC3	07/01/2004	0138	0153	15	VY	JD	10	537936	5633028	null	null	null	null	null	null	null	null	null	null	null	null	null	07/01/2004	
Carpenter Lake3	CC4	07/01/2004	0121	0136	15	VY	JD	10	537637	5633378	null	null	null	null	null	null	null	null	null	null	null	null	null	07/01/2004	
Carpenter Lake3	CC5	07/01/2004	0104	0119	15	VY	JD	10	537238	5633757	null	null	null	null	null	null	null	null	null	null	null	null	null	07/01/2004	
Carpenter Lake3	CC6	07/01/2004	0047	0102	15	VY	JD	10	539842	5634065	null	null	null	null	null	null	null	null	null	null	null	null	null	07/01/2004	
Carpenter Lake3	CC7	07/01/2004	0030	0045	15	VY	JD	10	535991	5634707	null	null	null	null	null	null	null	null	null	null	null	null	null	07/01/2004	
Carpenter Lake3	CC8	07/01/2004	0013	0028	15	VY	JD	10	535635	5635104	null	null	null	null	null	null	null	null	null	null	null	null	null	07/01/2004	
Carpenter Lake3	CC9	null	null	null	0	VY	JD	null	null	null	null	null	null	null	null	null	null	null	null	null	null	null	null	null	station not completed
Carpenter Lake3	CC10	07/01/2004	2342	0000	17	VY	JD	10	537741	5632464	BDOW	1	10	537142	5631791	CC 01-07	2355	12	3	TD	A	222	900	07/01/2004	adult male from across lake
Carpenter Lake3	CC11	07/01/2004	2325	2340	15	VY	JD	10	537293	5632754	null	null	null	null	null	null	null	null	null	null	null	null	null	07/01/2004	
Carpenter Lake3	CC12	07/01/2004	2308	2323	15	VY	JD	10	536767	5632938	null	null	null	null	null	null	null	null	null	null	null	null	null	07/01/2004	
Carpenter Lake3	CC13	07/01/2004	2252	2307	15	VY	JD	10	536212	5633026	null	null	null	null	null	null	null	null	null	null	null	null	null	07/01/2004	
Carpenter Lake3	CC14	07/01/2004	2235	2250	15	VY	JD	10	535725	5633242	null	null	null	null	null	null	null	null	null	null	null	null	null	07/01/2004	
Carpenter Lake3	CC15	07/01/2004	2219	2234	15	VY	JD	10	535351	5633635	null	null	null	null	null	null	null	null	null	null	null	null	null	07/01/2004	
Carpenter Lake3	CC16	07/01/2004	2202	2217	15	VY	JD	10	534310	5633877	null	null	null	null	null	null	null	null	null	null	null	null	null	07/01/2004	
Carpenter Lake3	CC17	07/01/2004	2145	2200	15	VY	JD	10	534310	5633958	null	null	null	null	null	null	null	null	null	null	null	null	null	07/01/2004	
Carpenter Lake3	CC1	24/7/2004	2352	0007	15	VY	JD	10	538567	5632480	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC2	24/7/2004	0014	0029	15	VY	JD	10	538032	5632536	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC3	24/7/2004	0031	0046	15	VY	JD	10	537936	5633028	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC4	24/7/2004	0048	0103	15	VY	JD	10	537637	5633379	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC5	24/7/2004	0105	0120	15	VY	JD	10	537238	5633757	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC6	24/7/2004	0122	0137	15	VY	JD	10	539842	5634065	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC7	24/7/2004	0139	0154	15	VY	JD	10	535991	5634707	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC8	24/7/2004	0154	0211	15	VY	JD	10	535635	5635104	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC9	24/7/2004	0216	0231	15	VY	JD	10	535476	5635529	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC10	24/7/2004	2334	2349	15	VY	JD	10	537741	5632464	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC11	24/7/2004	2318	2333	15	VY	JD	10	537293	5632754	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC12	24/7/2004	2301	2316	15	VY	JD	10	536767	5632938	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC13	24/7/2004	2244	2259	15	VY	JD	10	536212	5633026	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC14	24/7/2004	2227	2242	15	VY	JD	10	535725	5633242	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC15	24/7/2004	2211	2226	15	VY	JD	10	535351	5633635	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC16	24/7/2004	2155	2210	15	VY	JD	10	534825	5633877	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake3	CC17	24/7/2004	2138	2153	23	VY	JD	10	534310	5633958	null	null	null	null	null	null	null	null	null	null	null	null	null	24/7/2004	
Carpenter Lake4	CD1	21/6/2004	0241	0256	15	JM	VY	10	533796	5633817	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD2	21/6/2004	0224	0239	15	JM	VY	10	533282	5633851	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD3	21/6/2004	0207	0222	15	JM	VY	10	532820	5634104	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD4	21/6/2004	0151	0206	15	JM	VY	10	532452	5634483	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD5	21/6/2004	0135	0150	15	JM	VY	10	532123	5634890	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD6	21/6/2004	0119	0134	15	JM	VY	10	531885	5635365	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD7	21/6/2004	0102	0117	15	JM	VY	10	531363	5635584	FLOW	1	10	531336	5635932	CD 21-06	0111	9	6	TD	A	356	350	21/6/2004	adult male
Carpenter Lake4	CD8	21/6/2004	0046	0101	15	JM	VY	10	530717	5635641	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD9	21/6/2004	0030	0045	15	JM	VY	10	530486	5636040	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD10	21/6/2004	0014	0029	15	JM	VY	10	530074	5636429	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD11	21/6/2004	2358	0013	15	JM	VY	10	529563	5636577	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD12	21/6/2004	2342	2357	15	JM	VY	10	529056	5636664	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD13	21/6/2004	2326	2341	15	JM	VY	10	528650	5636979	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD14	21/6/2004	2309	2324	15	JM	VY	10	528191	5637244	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD15	21/6/2004	2253	2308	15	JM	VY	10	527824	5637624	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD16	21/6/2004	2236	2251	15	JM	VY	10	527413	4637889	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD17	21/6/2004	2219	2234	15	JM	VY	10	527027	5638148	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	
Carpenter Lake4	CD18	21/6/2004	2202	2217	15	JM	VY	10	526507	5638313	null	null	null	null	null	null	null	null	null	null	null	null	null	21/6/2004	

Survey Name	Station Label	Date	Station Time Start	Staton Time End	Time at Station (min)	Observer 1	Observer 2	Zone	Easting	Northing	Species	Count	Owl Zone	Owl Easting	Owl Northing	Form Number	Call Time	Response Time (min)	Call Duration (min)	Call Type	Visual or Accoustic (V/A)	Direction of Call (degrees)	Distance to Owl (meters)	date	Comments
Carpenter Lake4	CD1	22/7/2004	2140	2155	15	VY	JD	10	533796	5633817	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD2	22/7/2004	2157	2212	15	VY	JD	10	533282	5633851	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD3	22/7/2004	2214	2229	15	VY	JD	10	532820	5634104	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD4	22/7/2004	2231	2246	15	VY	JD	10	532452	5634483	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD5	22/7/2004	2248	2303	15	VY	JD	10	532123	5634890	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD6	22/7/2004	2305	2320	15	VY	JD	10	531885	5635365	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD7	22/7/2004	2322	2337	15	VY	JD	10	531363	5635584	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD8	22/7/2004	2339	2354	15	VY	JD	10	530717	5635641	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD9	22/7/2004	2356	0011	15	VY	JD	10	530486	5636040	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD10	22/7/2004	0014	0029	15	VY	JD	10	530074	5636429	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD11	22/7/2004	0030	0045	15	VY	JD	10	529563	5636577	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD12	22/7/2004	0047	0102	15	VY	JD	10	529056	5636664	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD13	22/7/2004	0104	0119	15	VY	JD	10	528650	5636979	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD14	22/7/2004	0121	0136	15	VY	JD	10	528191	5637244	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD15	22/7/2004	0138	0153	15	VY	JD	10	527824	5637624	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD16	22/7/2004	0155	0210	15	VY	JD	10	527413	4637889	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD17	22/7/2004	0212	0227	15	VY	JD	10	527027	5638148	null	null	null	null	null	null	null	null	null	null	null	null	null	22/7/2004	
Carpenter Lake4	CD1	28/7/2004	0149	0204	15	VY	JD	10	533796	5633817	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD2	28/7/2004	0133	0148	15	VY	JD	10	533282	5633851	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD3	28/7/2004	0117	0132	15	VY	JD	10	532820	5634104	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD4	28/7/2004	0101	0116	15	VY	JD	10	532452	5634483	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD5	28/7/2004	0045	0100	15	VY	JD	10	532123	5634890	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD6	28/7/2004	0029	0044	15	VY	JD	10	531885	5635365	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD7	28/7/2004	0013	0028	15	VY	JD	10	531363	5635584	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD8	28/7/2004	2357	0012	15	VY	JD	10	530717	5635641	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD9	28/7/2004	2341	2356	15	VY	JD	10	530486	5636040	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD10	28/7/2004	2325	2340	15	VY	JD	10	530074	5636429	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD11	28/7/2004	2309	2324	15	VY	JD	10	529563	5636577	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD12	28/7/2004	2253	2308	15	VY	JD	10	529056	5636664	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD13	28/7/2004	2237	2252	15	VY	JD	10	528650	5636979	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD14	28/7/2004	2221	2236	15	VY	JD	10	528191	5637244	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD15	28/7/2004	2202	2220	15	VY	JD	10	527824	5637624	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD16	28/7/2004	2149	2204	15	VY	JD	10	527413	4637889	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake4	CD17	28/7/2004	2133	2148	15	VY	JD	10	527027	5638148	null	null	null	null	null	null	null	null	null	null	null	null	null	28/7/2004	
Carpenter Lake5	CE1	22/6/2004	0215	0230	15	VY	JM	10	252860	5638490	null	null	null	null	null	null	null	null	null	null	null	null	null	22/6/2004	
Carpenter Lake5	CE2	22/6/2004	0158	0213	15	VY	JM	10	525403	5638783	null	null	null	null	null	null	null	null	null	null	null	null	null	22/6/2004	
Carpenter Lake5	CE3	22/6/2004	0141	0156	15	VY	JM	10	524757	5638907	null	null	null	null	null	null	null	null	null	null	null	null	null	22/6/2004	
Carpenter Lake5	CE4	22/6/2004	0124	0139	15	VY	JM	10	524257	5638999	null	null	null	null	null	null	null	null	null	null	null	null	null	22/6/2004	
Carpenter Lake5	CE5	22/6/2004	0107	0122	15	VY	JM	10	523801	5639098	null	null	null	null	null	null	null	null	null	null	null	null	null	22/6/2004	
Carpenter Lake5	CE6	22/6/2004	0050	0105	15	VY	JM	10	523349	5639184	null	null	null	null	null	null	null	null	null	null	null	null	null	22/6/2004	
Carpenter Lake5	CE7	22/6/2004	0033	0048	15	VY	JM	10	522753	5639321	null	null	null	null	null	null	null	null	null	null	null	null	null	22/6/2004	
Carpenter Lake5	CE8	22/6/2004	0016	0031	15	VY	JM	10	522250	5639449	null	null	null	null	null	null	null	null	null	null	null	null	null	22/6/2004	
Carpenter Lake5	CE9	22/6/2004	2357	0012	15	VY	JM	10	519896	5639568	null	null	null	null	null	null	null	null	null	null	null	null	null	22/6/2004	
Carpenter Lake5	CE10	22/6/2004	2340	2355	15	VY	JM	10	519357	5639550	BDOW	1	10	516023	5638455	CE 22-06	2157	0	null	TD	A	322	100	22/6/2004	adult male calling upon arrive at station
Carpenter Lake5	CE11	22/6/2004	2323	2338	15	VY	JM	10	518842	5639557	null	null	null	null	null	null	null	null	null	null	null	null	null	22/6/2004	
Carpenter Lake5	CE12	22/6/2004	2306	2321	15	VY	JM	10	518217	5639460	null	null	null	null	null	null	null	null	null	null	null	null	null	22/6/2004	
Carpenter Lake5	CE13	22/6/2004	2249	2304	15	VY	JM	10	518019	5639019	null	null	null	null	null	null	null	null	null	null	null	null	null	22/6/2004	
Carpenter Lake5	CE14	22/6/2004	2232	2247	15	VY	JM	10	517744	5639644	null	null	null	null	null	null	null	null	null	null	null	null	null	22/6/2004	
Carpenter Lake5	CE15	22/6/2004	2215	2230	15	VY	JM	10	517149	5639508	null	null	null	null	null	null	null	null	null	null	null	null	null	22/6/2004	
Carpenter Lake5	CE16	22/6/2004	null	null	0	VY	JM	null	null	null	null	null	null	null	null	null	null	null	null	null	null	null	null	22/6/2004	skipped station due to GHOW at CE17
Carpenter Lake5	CE17	22/6/2004	2157	2212	15	VY	JM	10	516083	5638383	GHOW	1	10	518863	5638673	CE 22-06	2347	7	8	TD	A	210	1000	22/6/2004	adult male calling 9 note from across lake
Carpenter Lake5	CE1	14/7/2004	0211	0226	15	JD	VY	10	525874	5638476	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	
Carpenter Lake5	CE2	14/7/2004	0155	0210	15	JD	VY	10	525398	5638802	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	
Carpenter Lake5	CE3	14/7/2004	0139	0154	15	JD	VY	10	524785	5638889	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	
Carpenter Lake5	CE4	14/7/2004	0122	0137	15	JD	VY	10	524242	5639009	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	
Carpenter Lake5	CE5	14/7/2004	0105	0120	15	JD	VY	10	523791	5639098	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	
Carpenter Lake5	CE6	14/7/2004	0049	0104	15	JD	VY	10	523308	5639204	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	
Carpenter Lake5	CE7	14/7/2004	0033	0048	15	JD	VY	10	522753	5639328	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	
Carpenter Lake5	CE8	14/7/2004	0016	0031	15	JD	VY	10	522257	5639438	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	
Carpenter Lake5	CE9	14/7/2004	2358	0013	15	JD	VY	10	519904	5639567	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	
Carpenter Lake5	CE10	14/7/2004	2342	2357	15	JD	VY	10	519360	5639539	BDOW	1	10	518574	5638922	CE 14-07	2346	4	6	TD	A	232	1000	14/7/2004	male called from across lake
Carpenter Lake5	CE11	14/7/2004	2326	2341	15	JD	VY	10	518837	5639547	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	
Carpenter Lake5	CE12	14/7/2004	2309	2324	15	JD	VY	10	518209	5639466	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	
Carpenter Lake5	CE13	14/7/2004	2252	2307	15	JD	VY	10	517975	5638993	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	

Observations_ BCRP

Survey Name	Station Label	Date	Station Time Start	Staton Time End	Time at Station (min)	Observer 1	Observer 2	Zone	Easting	Northing	Species	Count	Owl Zone	Owl Easting	Owl Northing	Form Number	Call Time	Response Time (min)	Call Duration (min)	Call Type	Visual or Accoustic (V/A)	Direction of Call (degrees)	Distance to Owl (meters)	date	Comments
Carpenter Lake5	CE14	14/7/2004	2235	2250	15	JD	VY	10	517717	5638634	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	
Carpenter Lake5	CE15	14/7/2004	2218	2233	15	JD	VY	10	517147	5638516	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	
Carpenter Lake5	CE16	14/7/2004	2202	2217	15	JD	VY	10	516565	5638544	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	
Carpenter Lake5	CE17	14/7/2004	2145	2200	15	JD	VY	10	516087	5638376	null	null	null	null	null	null	null	null	null	null	null	null	null	14/7/2004	
Carpenter Lake5	CE1	23/7/2004	0141	0156	15	JD	VY	10	525874	5638476	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	
Carpenter Lake5	CE2	23/7/2004	0125	0140	15	JD	VY	10	525398	5638802	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	
Carpenter Lake5	CE3	23/7/2004	0109	0124	15	JD	VY	10	524785	5638889	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	
Carpenter Lake5	CE4	23/7/2004	0053	0108	15	JD	VY	10	524242	5639009	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	
Carpenter Lake5	CE5	23/7/2004	0037	0052	15	JD	VY	10	523791	5639098	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	
Carpenter Lake5	CE6	23/7/2004	0021	0036	15	JD	VY	10	523308	5639204	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	
Carpenter Lake5	CE7	23/7/2004	0003	0018	15	JD	VY	10	522753	5639328	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	
Carpenter Lake5	CE8	23/7/2004	2347	0002	15	JD	VY	10	522257	5639438	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	
Carpenter Lake5	CE9	23/7/2004	2330	2345	15	JD	VY	10	519904	5639567	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	
Carpenter Lake5	CE10	23/7/2004	2314	2329	15	JD	VY	10	519360	5639539	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	
Carpenter Lake5	CE11	23/7/2004	2258	2313	15	JD	VY	10	518837	5639547	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	
Carpenter Lake5	CE12	23/7/2004	2242	2257	15	JD	VY	10	518209	5639466	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	
Carpenter Lake5	CE13	23/7/2004	2226	2241	15	JD	VY	10	517975	5638993	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	
Carpenter Lake5	CE14	23/7/2004	2209	2224	15	JD	VY	10	517717	5638634	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	
Carpenter Lake5	CE15	23/7/2004	2152	2207	15	JD	VY	10	517147	5638516	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	
Carpenter Lake5	CE16	23/7/2004	null	null	0	JD	VY	null	null	null	null	null	null	null	null	null	null	null	null	null	null	null	null	23/7/2004	skipped station due to GHOW
Carpenter Lake5	CE17	23/7/2004	2140	2150	15	JD	VY	10	516084	5638376	GHOW	1	10	516084	5638376	CE 27/07	2140	0	10	null	A	0	0	23/7/2004	male and female calling together prior to starti
Bridge River	BR1	13/7/2004	0224	0239	15	VY	JD	10	55894	5626338	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR2	13/7/2004	0207	0222	15	VY	JD	10	556262	5626742	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR3	13/7/2004	0149	0204	15	VY	JD	10	557899	5626973	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR4	13/7/2004	0132	0147	15	VY	JD	10	558060	5627503	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR5	13/7/2004	0115	0130	15	VY	JD	10	557866	5628583	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR6	13/7/2004	0058	0113	15	VY	JD	10	558105	5629062	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR7	13/7/2004	0041	0056	15	VY	JD	10	558098	5629545	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR8	13/7/2004	0025	0039	15	VY	JD	10	557647	5630332	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR9	13/7/2004	0007	0022	15	VY	JD	10	557108	5630404	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR10	13/7/2004	2350	0005	15	VY	JD	10	556616	5630510	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR11	13/7/2004	2333	2348	15	VY	JD	10	556474	5631117	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR12	13/7/2004	2315	2330	15	VY	JD	10	555699	5632581	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR13	13/7/2004	2258	2313	15	VY	JD	10	555965	5633154	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR14	13/7/2004	2241	2256	15	VY	JD	10	556286	5633538	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR15	13/7/2004	2222	2237	15	VY	JD	10	556535	5634047	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR16	13/7/2004	2205	2220	15	VY	JD	10	556873	5634468	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR17	13/7/2004	2147	2202	15	VY	JD	10	557358	5634689	null	null	null	null	null	null	null	null	null	null	null	null	null	13/7/2004	
Bridge River	BR1	20/7/2004	0205	0220	15	VY	JD	10	555894	5626338	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR2	20/7/2004	0148	0203	15	VY	JD	10	556262	5626742	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR3	20/7/2004	0130	0145	15	VY	JD	10	557899	5626973	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR4	20/7/2004	0113	0128	15	VY	JD	10	558060	5627503	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR5	20/7/2004	0056	0111	15	VY	JD	10	557866	5628583	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR6	20/7/2004	0039	0054	15	VY	JD	10	558105	5629062	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR7	20/7/2004	0022	0037	15	VY	JD	10	558098	5629545	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR8	20/7/2004	0005	0020	15	VY	JD	10	557647	5630332	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR9	20/7/2004	2348	0003	15	VY	JD	10	557108	5630404	BDOW	1	10	556983	5630676	BR 20-07	2349	1	.5	single	A	336	300	20/7/2004	adult male
Bridge River	BR10	20/7/2004	2332	2347	15	VY	JD	10	556616	5630510	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR11	20/7/2004	2315	2330	15	VY	JD	10	556494	5631117	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR12	20/7/2004	2257	2312	15	VY	JD	10	555699	5632581	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR13	20/7/2004	2240	2255	15	VY	JD	10	555965	5633154	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR14	20/7/2004	2224	2239	15	VY	JD	10	556286	5633538	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR15	20/7/2004	2207	2222	15	VY	JD	10	556535	5634047	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR16	20/7/2004	2150	2205	15	VY	JD	10	556873	5634468	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR17	20/7/2004	2132	2147	15	VY	JD	10	557358	5634689	null	null	null	null	null	null	null	null	null	null	null	null	null	20/7/2004	
Bridge River	BR1	27/7/2004	0153	0208	15	JD	VY	10	555894	5626338	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	
Bridge River	BR2	27/7/2004	0137	0152	15	JD	VY	10	556262	5626742	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	
Bridge River	BR3	27/7/2004	0120	0135	15	JD	VY	10	557899	5626973	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	
Bridge River	BR4	27/7/2004	0104	0119	15	JD	VY	10	558060	5627503	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	
Bridge River	BR5	27/7/2004	0048	0103	15	JD	VY	10	557866	5628583	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	
Bridge River	BR6	27/7/2004	0032	0047	15	JD	VY	10	558105	5629062	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	
Bridge River	BR7	27/7/2004	0016	0031	15	JD	VY	10	558098	5629545	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	
Bridge River	BR8	27/7/2004	0000	0015	15	JD	VY	10	557647	5630332	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	
Bridge River	BR9	27/7/2004	2344	2359	15	JD	VY	10	557108	5630404	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	

Observations_ BCRP

Survey Name	Station Label	Date	Station Time Start	Staton Time End	Time at Station (min)	Observer 1	Observer 2	Zone	Easting	Northing	Species	Count	Owl Zone	Owl Easting	Owl Northing	Form Number	Call Time	Response Time (min)	Call Duration (min)	Call Type	Visual or Accoustic (V/A)	Direction of Call (degrees)	Distance to Owl (meters)	date	Comments
Bridge River	BR10	27/7/2004	2328	2343	15	JD	VY	10	556616	5630510	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	
Bridge River	BR11	27/7/2004	2312	2327	15	JD	VY	10	556494	5631117	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	
Bridge River	BR12	27/7/2004	2255	2310	15	JD	VY	10	555699	5632581	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	
Bridge River	BR13	27/7/2004	2239	2254	15	JD	VY	10	555965	5633154	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	
Bridge River	BR14	27/7/2004	2223	2238	15	JD	VY	10	556286	5633538	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	
Bridge River	BR15	27/7/2004	2207	2222	15	JD	VY	10	556535	5634047	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	
Bridge River	BR16	27/7/2004	2150	2205	15	JD	VY	10	556873	5634468	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	
Bridge River	BR17	27/7/2004	2133	2148	15	JD	VY	10	557358	5634689	null	null	null	null	null	null	null	null	null	null	null	null	null	27/7/2004	