

# **BARRED OWL SURVEYS - 2006**

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**Cedar River Watershed  
North Bend, Washington**

**October 26, 2006**

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**RAEDEKE ASSOCIATES, INC.**

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Report To: City of Seattle  
Cedar River Watershed  
19901 Cedar Falls Road, S.E.  
North Bend WA 98045

Title: Barred Owl Surveys in the  
Cedar River Watershed – 2006

Project Number: 2006-022-001

Prepared by: RAEDEKE ASSOCIATES, INC.  
5711 N.E. 63rd Street  
Seattle, Washington 98115  
(206) 525-8122

With the Cooperation of: Sally Nickelson, Wildlife Biologist  
City of Seattle, Cedar River Watershed,  
19901 Cedar Falls Road, S.E.  
North Bend, WA 98045

Date: October 26, 2006

Project Manager:

Dale R. Herter, M.S.  
Wildlife Biologist

Current Project Personnel:

Joel Merriman, M.S.  
Wildlife Biologist

Connie Holloway  
Field Technician

Danette Emberlin Fuhrer  
Administrative Editor

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## 1.0 INTRODUCTION

In 2005, Raedeke Associates, Inc. staff conducted a series of calling surveys for northern spotted owls (*Strix occidentalis caurina*), a threatened species, in the Cedar River Watershed. Survey routes covered all 6 major patches of old forest within the Watershed. No spotted owls were detected during any of the six visits to each calling route in 2005. We detected other species of owls, however, most notably several singles and pairs of barred owls (*Strix varia*). Because we failed to locate spotted owls in the most likely habitat within the watershed, surveys to additionally document barred owl presence, using barred owl calls, was initiated in 2006.

This survey program was initiated as part of the wildlife monitoring activities of the City of Seattle, Cedar River Watershed. This 2006 survey constitutes the initial survey of the watershed for the purpose of determining the presence or absence of barred owls using survey techniques designed for this species.

## 2.0 METHODS

The 2005 spotted owl survey procedures followed recommended U.S. Fish and Wildlife Service guidelines (USFWS 1992). We modified these techniques slightly to better detect barred owls in 2006. 1) We initiated surveys earlier in the evening than is typical for spotted owls. We found that barred owls are quite active during hours of dusk, so we typically began surveys at or near published times for civil twilight. 2) We remained at each station for 10 minutes, giving barred owl calls and listening, but then added an additional step of checking all trees in the nearby area with a strong flashlight for owls after all calls had been given, and before leaving the site. This yielded a number of sightings of silent owls that we would have otherwise missed. And, 3) we began using high quality digital recordings of a variety of barred owl calls. We found that barred owls seemed to respond better to tapes of their own calls, particularly agitated calls, than to imitations of barred owl calls either using a hoot-flute or using the human voice.

The survey routes consisted of a series of mapped calling stations placed in and on the edge of old and mature coniferous and mixed forest stands, in order to obtain coverage of habitat patches that had not been adequately surveyed in past years (Figures 1-5). Survey stations were called during hours of twilight and darkness. Surveys were completed within the suggested survey season for spotted owls, March 15<sup>th</sup> to August 31<sup>st</sup> (which has been extended to September 15<sup>th</sup> in Washington), which corresponds to the active breeding period for both owl species. Three surveys were conducted at each of the 5 survey areas and were spaced throughout the season in order to detect any potential nesting birds early in the season, and later to detect owls that may have moved into territories during the later half of the breeding period. We abandoned further surveys at a survey station for the season once a pair of barred owls was detected, and added a replacement station.

Surveys were halted and rescheduled if rain was moderate or heavy, or if tree-drip or winds greater than 10 mph interfered with hearing. We sometimes rescheduled surveys if human activity was present near calling stations, particularly for those done at night. We did not initiate a night of surveys if weather conditions appeared to be severe enough to preclude most survey areas. Survey personnel remained outside of their vehicles at each station for at least 10 minutes, broadcasting barred owl calls and listening for responses alternately during this period. Surveyors used their voices, “hoot-flutes,” and tapes of barred owl calls to elicit responses. Most stations were surveyed with use of barred owl recordings. All owls heard during each 10-minute survey were noted.

A typical evening survey, conducted under appropriate weather conditions, consisted of two or more observers driving separate survey routes and initiating surveys after civil twilight. A route to the stations to be surveyed was predetermined for the evening and surveys began with initial calls given at the first station. Observers drove between stations and typically covered each survey area in a “wave” from one end of the survey area to the other. We typically surveyed from 10-15 stations per evening, requiring 3 to 6 hours per survey night per observer. A schedule of survey visits is provided in Table 1.

## 3.0 RESULTS

### 3.1 Weather

The surveys were conducted from very late March through very early September, 2006. We did not survey earlier in the spring, primarily due to snow-covered roads and bad weather. Weather in spring and summer 2006 was generally better than in 2005, offering more nights of dry conditions to survey for owls. There were no survey days when precipitation was too heavy to conduct the survey visit. We encountered a few moderate rain showers on a few nights, but were able to wait out the showers until the weather improved. Twelve of 15 surveys were done during clear or high overcast days with no precipitation. High winds were generally not a problem in the watershed in 2006. Although the weather was not ideal on all visits, we nonetheless obtained responses on nights with occasional mist or showers.

### 3.2 Responses

We obtained 25 responses from barred owls during the 15 survey nights (Table 2). The only other owl species detected during our surveys in 2006 was a single calling northern pygmy owl (*Glaucidium gnoma*) heard on Transect 5 on 8 August. We anticipated detection of both larger and smaller owl species but obtained no others during the visits. We did encounter two barred owls on the road while driving to the historic Meadow Mountain spotted owl site to conduct surveys for spotted owls there. These detections are noted on a separate map (Figure 9).

Detections included

### 3.3 Other Detections

Spotted owl surveys were conducted at three stations near the Meadow Mountain site on 13 June and again on 31 August 2006. No spotted owls were detected.

Other wildlife heard at night during the surveys included common loons (*Gavia immer*), common nighthawks (*Chordeiles minor*), and coyotes (*Canis latrans*). Bats, mountain beavers (*Aplodontia rufus*), deermice (*Peromyscus maniculatus/keeni*), snowshoe hares (*Lepus americanus*), blacktail deer (*Odocoileus hemionus*), elk (*Cervus elaphus*), bobcats (*Lynx rufus*), and black bears (*Ursus americanus*) were occasionally seen while driving between stations.

## 4.0 DISCUSSION

We located barred owls on only two of the five survey routes in 2006. Routes 4 and 5 supported no detections and were designed to survey upland areas with old growth forest patches. Routes 1-3 were in lowland areas with mature second growth covering significant portions of the routes. In looking at the response locations, it is noticeable that Route 3 supported the most responses. This route circumnavigated Chester Morse Lake and associated wetlands. Barred owl response locations on transects 1 and 2 were also, for the most part, located near wetland areas. 2006 Survey Routes 4 and 5 are notable in their lack of wetlands (one small patch is present on Route 5), which may help explain the lack of barred owl responses.

Barred owls are known to regularly feed on amphibians (particularly frogs) and fish. Barred owls have been seen hunting in areas of slow-moving, shallow water (L. Melampy, C. Haney, pers. comm.), presumably where they can capture prey without plunging into deep water, because their plumage is not adapted to wetting. Access to these food resources may be more important for barred owls in Washington than has been previously noted.

In 2006, we surveyed 63 stations for barred owls at least once. Of those 63 stations, 32 occurred within ¼ mile of a lake, pond, or wetland (i.e., presence of still water), and 31 stations did not occur within ¼ mile of a lake, pond, or wetland, as calculated from maps of the upper Cedar River Watershed provided to us by City of Seattle biologists. Of the 20 stations where we received responses or detections of barred owls, all 20 were within ¼ mile of a lake, pond, or wetland. None of the 31 stations that were more than ¼ mile from a lake, pond, or wetland received a barred owl detection. Two stations (Route 1-station 1, and Route 2-station 5) were not within ¼ mile of a lake, pond, or wetland, but did have historic barred owl responses. It is interesting that we did not detect these barred owls during the 2006 surveys. This may suggest that only those sites within easy reach of still water for hunting, maintain barred owls over the long term. Old or mature forest alone may not be enough to maintain barred owl occupancy over the long term.

During spotted owl surveys in 2005, we obtained several barred owl responses. While some were near known wetlands (such as Findley Lake), others were less obvious, but may have been associated with wetlands, even small ones such as Sutton Lake, and wetlands north of Goat Mountain on Troublesome Creek. The barred owl flushed from the roadside outside of the surveyed area (observation B, Figure 9) in 2006 was also near a small wetland. Further analysis of recent barred owl detections (vs. historic detections) and wetlands (perhaps with National Wetland Inventory maps) may shed additional insight into current barred owl distribution in the Watershed.

## **5.0 LITERATURE CITED**

Herter, D.R., J.W. Merriman, and C. Holloway. 2005. Spotted Owl Surveys –2005, Cedar River Watershed. Final Report by Raedeke Associates, Inc. to City of Seattle.

U.S. Fish and Wildlife Service.1992. Protocol for surveying proposed management activities that may impact northern spotted owls. Final Report, U.S. Fish and Wildlife Service, Portland, Oregon.

## **TABLES AND FIGURES**

Table 1. Timing of visits to barred owl survey areas in the Cedar River Watershed, 2006.

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<i>Route</i>	<i>Visit 1</i>	<i>Visit 2</i>	<i>Visit 3</i>
1	29 March	12 June	15 August
2	29 March	12 June	17 August
3	26 April	13-14 June	31 August-1 September
4	21 June	11 July	31 August
5	29 June	19 July	8 August

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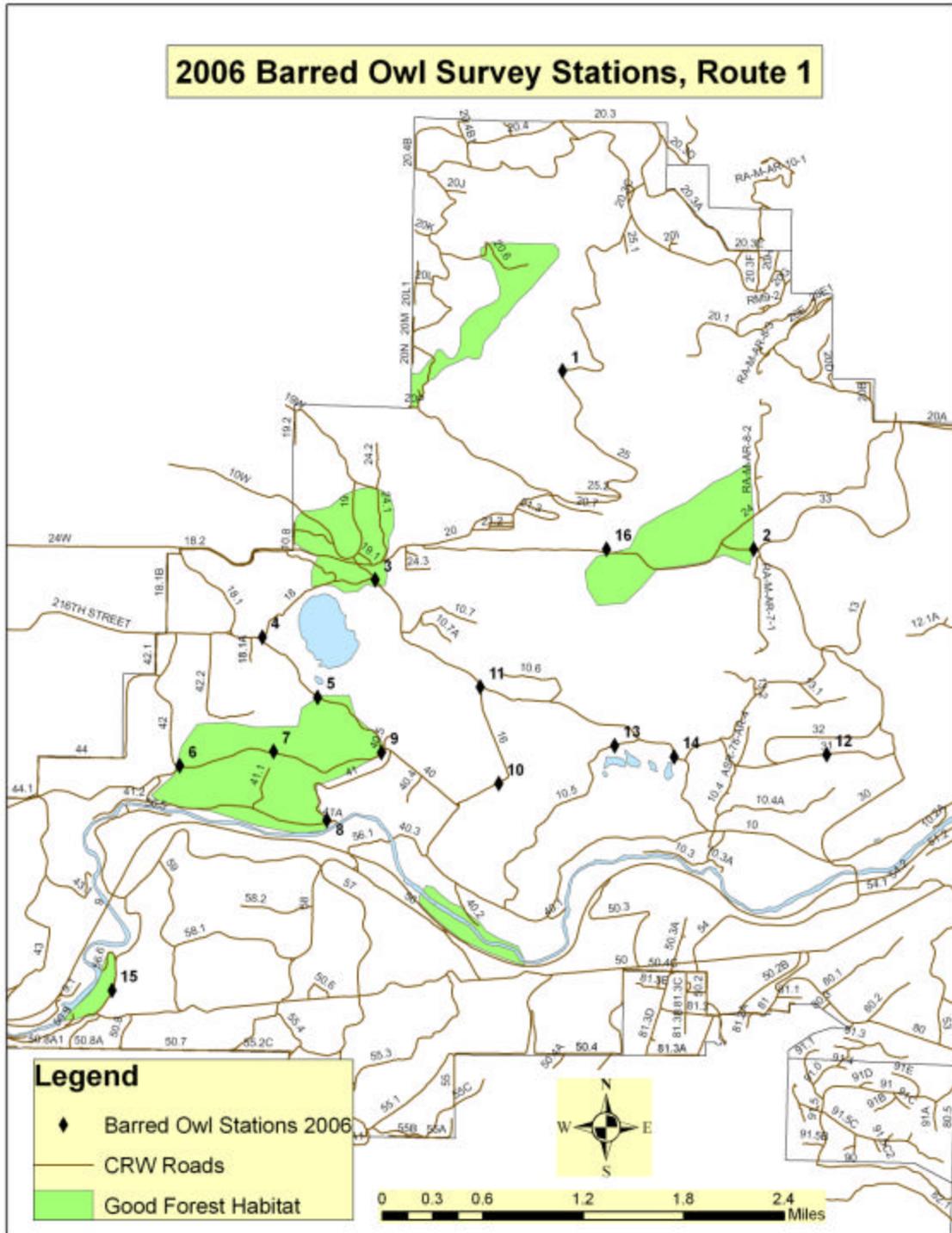
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Table 2. Summary of responses (in chronological order) from barred owls detected in the Cedar River Watershed, 2006.

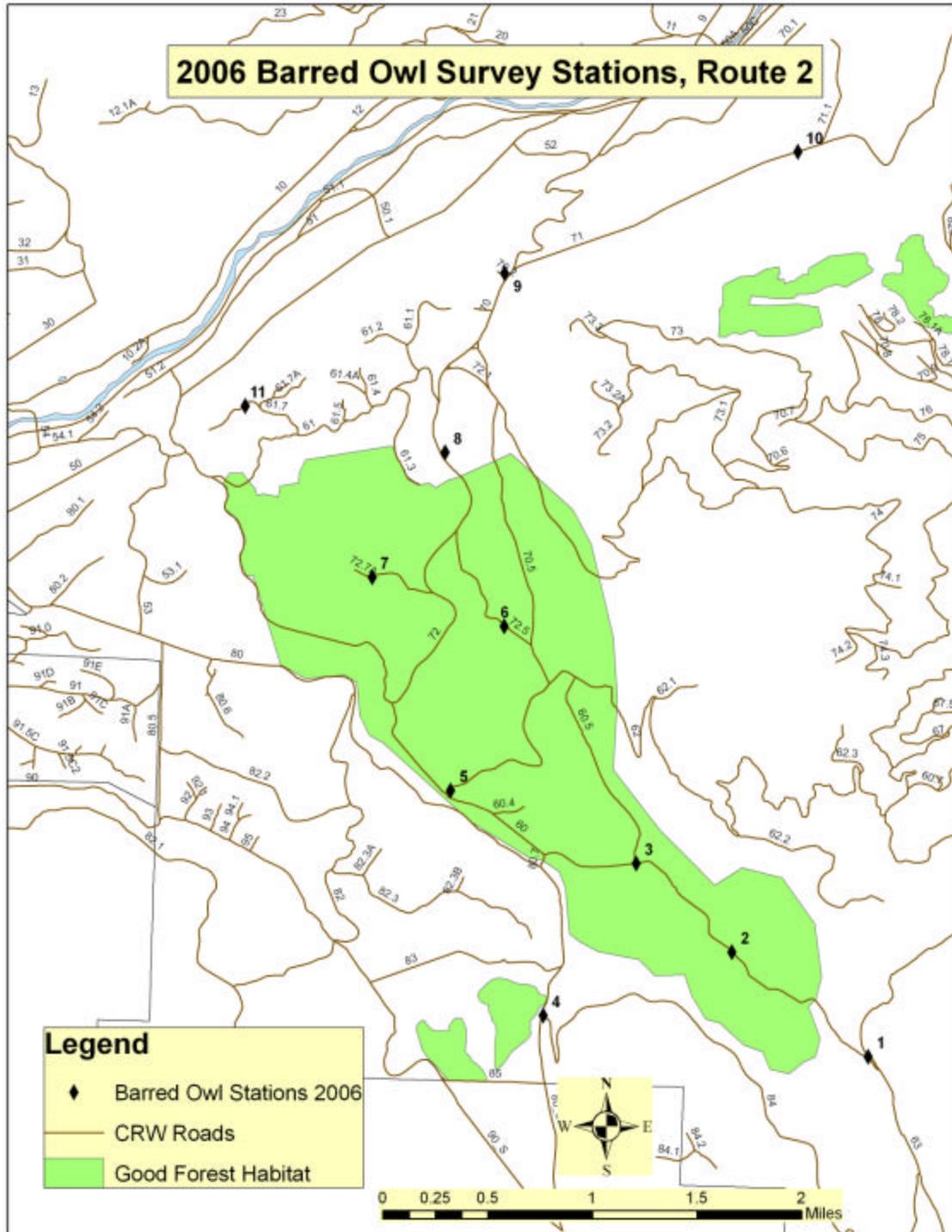
<b>Sta.</b>	<b>Detection</b>	<b>Sex/Age</b>	<b>Date</b>	<b>Time</b>	<b>Route</b>
10	audio	pair	29 March	19:03	Route 1
11	visual	unknown	29 March	21:19	Route 1
6	visual	unknown	26 April	20:26	Route 3
8	audio, visual	male	26 April	20:39	Route 3
10	audio, visual	pair	26 April	21:24	Route 3
12	audio, visual	male	26 April	22:02	Route 3
4	audio	pair	26 April	22:17	Route 3
3	audio	female	26 April	22:53	Route 3
4	audio, visual	pair	12 June	21:36	Route 2
3	audio	male	12 June	22:31	Route 2
5	audio, visual	pair	12 June	22:42	Route 1
3	visual	unknown	13 June	19:55	Route 3
13	audio, visual	male	13 June	20:43	Route 3
5	audio, visual	pair	13 June	21:05	Route 3
6	audio	male	13 June	21:43	Route 3
7	audio	male	13 June	21:52	Route 3
11	audio, visual	male	13 June	23:40	Route 3
1	audio	male	14 June	00:33	Route 3
1	audio	pair	20 July	00:40	Route 3
2	audio, visual	male	15 August	21:05	Route 1
13	audio	male	15 August	22:46	Route 1
11	audio, visual	pair	16 August	00:02	Route 1
6	audio	male	31 August	23:01	Route 3
9	audio	pair+juv.	31 August	23:43	Route 3
15	audio	male	1 September	00:46	Route 3

# Figure 1.

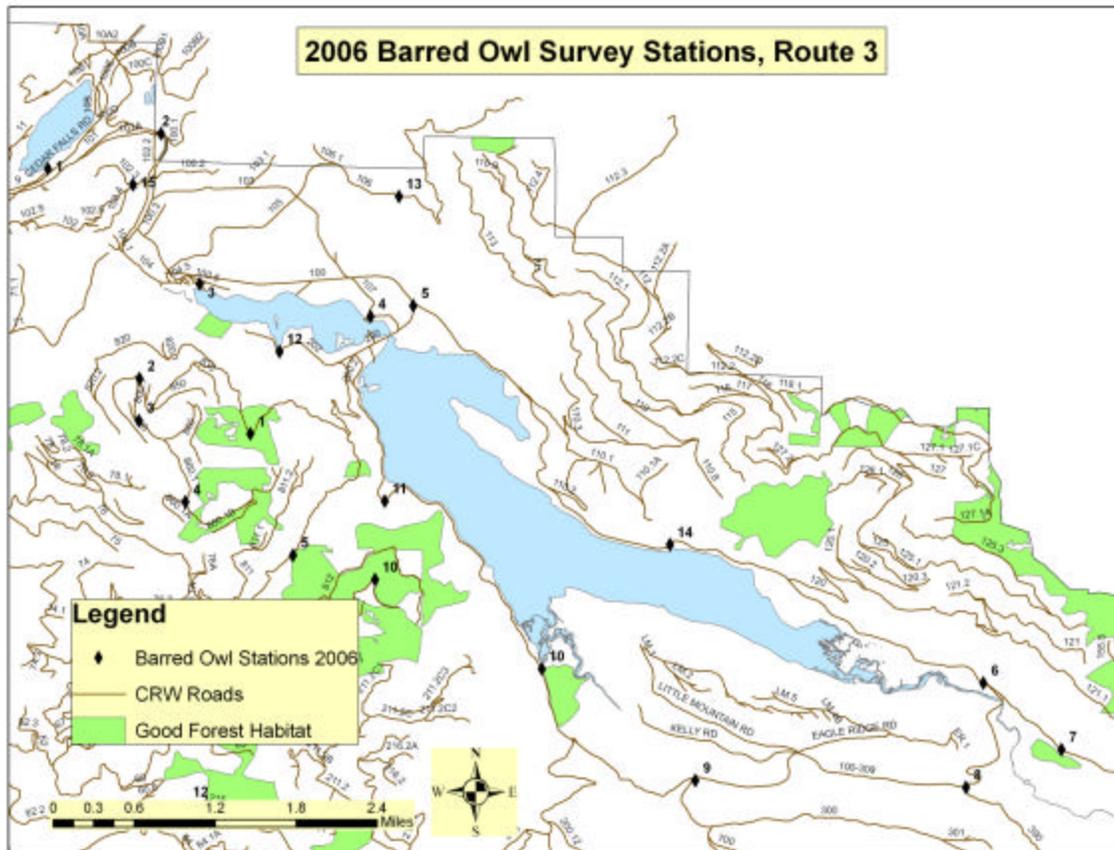
## Barred Owl Survey Stations: Route 1



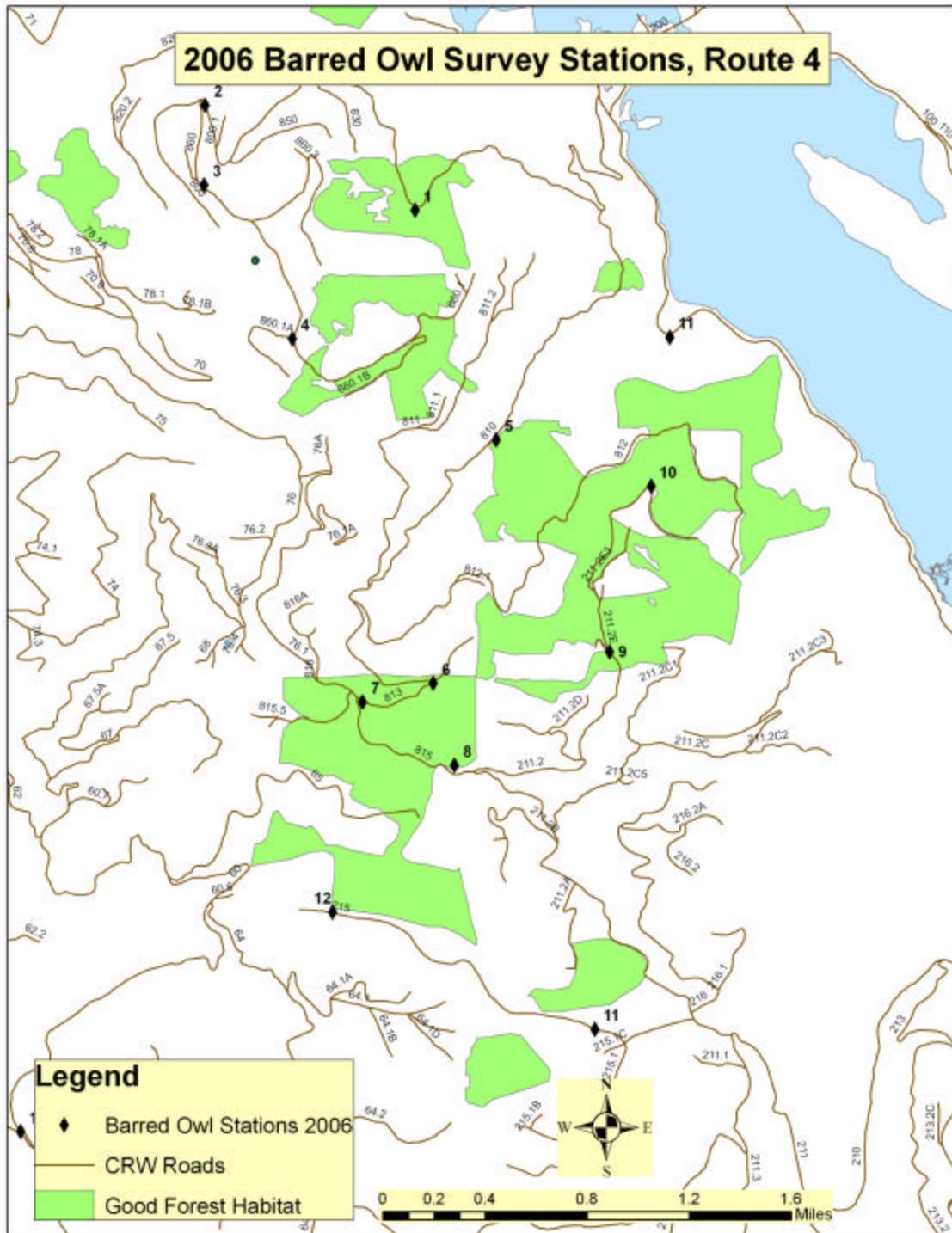
**Figure 2.**  
**Barred Owl Survey Stations: Route 2**



**Figure 3.**  
**Barred Owl Survey Stations: Route 3**



**Figure 4.**  
**Barred Owl Survey Stations: Route 4**





**Figure 6.**  
**Barred Owl Responses, 2006 Survey**

