

**SURVEYS FOR BLACK-BACKED WOODPECKERS (*Picoides arcticus*) ON
THE LARAMIE AND BIGHORN MOUNTAINS, WYOMING**



FINAL REPORT
2013

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Abstract

In Wyoming, the Black-backed Woodpecker inhabits the Greater Yellowstone Ecosystem south along the Wyoming Range, and a disjunct population exists in the Black Hills of Wyoming and South Dakota. The Black-backed Woodpecker is classified as a Species of Greatest Conservation Need in Wyoming due to unknown population status and trends and habitat-related limiting factors that are severe. Isolated populations of Black-backed Woodpeckers in the Black Hills of Wyoming and in Oregon and California were petitioned for protection under the Endangered Species Act in 2012. In 2013, the United States Fish and Wildlife Service issued a positive 90-day finding indicating that the petition presented substantial scientific evidence to support listing these populations. The Black-backed Woodpecker is associated with boreal and montane coniferous forests. It generally occurs at low densities in mature, unaltered forests but is often associated with recently burned forests, with much higher densities observed within burned forests than unburned forests. While the Black-backed Woodpecker has not been documented in Wyoming's Bighorn Mountains or the Laramie Range, potentially suitable habitat exists, recent fire activity has been relatively high, and these large fires occurred within irruptive distances observed for this species. The Wyoming Natural Diversity Database and Wyoming Game and Fish Department cooperatively used call-playback surveys to document presence or absence of Black-backed Woodpeckers in post-fire habitat outside of their known range in the Bighorn Mountains, Casper Mountain, and near Laramie Peak. At each survey location, we listened passively for ≥ 1 min, then broadcasted a 30-sec sequence of a Black-backed Woodpecker drumming and calling followed by 1 min of silence. We recorded the type of response, species responding, and confidence of species identification. We conducted 191 surveys and detected 79 woodpeckers representing 7 species, but did not document any Black-backed Woodpeckers at any location during the study. Although negative survey results do not conclusively rule out presence of the species, evidence from other studies shows that the Black-backed Woodpecker responds readily to broadcast calls, meaning that it is likely to be detected using this method if present in the vicinity of the survey location. Our results suggest that Black-backed Woodpecker distribution in Wyoming is limited to the northwestern mountains and the Black Hills.

Introduction

The Black-backed Woodpecker (*Picoides arcticus*) is widely distributed across the boreal forests of northern North America. The species' distribution extends south along the Cascade and Sierra Nevada Ranges in Washington, Oregon, and California and also along the northern Rocky Mountains into Wyoming (Figure 1). In Wyoming, Black-backed Woodpeckers can be found throughout the Greater Yellowstone Ecosystem south along the Wyoming Range (Figure 2). A disjunct population also exists in the Black Hills of Wyoming and South Dakota. The Black-backed Woodpecker is classified as a Species of Greatest Conservation Need in Wyoming due to unknown population status and trends and habitat-related limiting factors that are severe and continue to increase in severity (WGFD 2010).

The isolated population of Black-backed Woodpecker in the Black Hills, along with isolated populations in Oregon and California, were petitioned for protection under the Endangered Species Act (ESA) in 2012 (Hanson et al. 2012, United States Fish and Wildlife Service 2013). In 2013, the United States Fish and Wildlife Service (USFWS) issued a positive 90-day finding indicating that the petition presented substantial scientific evidence to support listing these populations. Currently, the USFWS is conducting a formal status review of these distinct population segments (United States Fish and Wildlife Service 2013).

The Black-backed Woodpecker is associated with boreal and montane coniferous forests range wide. The species generally occurs at low densities in mature, unaltered forests. However, the species is often

associated with recently burned forests, with much higher densities of Black-backed Woodpeckers observed within burned forests than unburned forests (Mohren 2002). Typically, densities of Black-backed Woodpeckers are highest one to three years post burn. Furthermore, evidence suggests that Black-backed Woodpecker irruptions result in colonization of burned areas within a few months after fire activity has ceased in the area (Dixon and Saab 2000). Additionally, relatively long distance irruptions of over 500 km have been observed in portions of the species range (Dixon and Saab 2000). This suggests that the species may colonize burned areas far from their current distribution within a relatively short time period.

While the Black-backed Woodpecker has not been documented in the Bighorn Mountains in north central Wyoming or in the Laramie Range in central Wyoming, potentially suitable habitat that is similar to that found in the Black Hills can be found in these mountain ranges. Also, fire activity has been relatively high in these mountain ranges in recent years. In 2012 alone, the Gilead Fire on the eastern edge of the Bighorns burned nearly 8,200 acres while in the Laramie Range, multiple fires burned well over 100,000 acres. These large fires occurred well within irruptive distances observed for this species increasing the odds that these areas may become occupied.

Because of these behavioral and life-history traits, the large and recent fires in northern and central Wyoming, and the emerging management importance of the Black Hills population of the species, the Wyoming Natural Diversity Database (University of Wyoming) and the Wyoming Game and Fish Department cooperatively used playback surveys to search for Black-backed Woodpecker outside of their known range. Specifically, we conducted surveys in the Bighorn Mountains, on Casper Mountain, and in the vicinity of Laramie Peak (Figures 3-6). The primary goal of these surveys was to document presence or absence of Black-backed Woodpeckers in suitable habitat outside of the known distribution of the species. This information could then be used to inform future research needs and the ESA listing decision.

Methods

Site section varied based on location. All surveys were conducted within forested habitats that experienced wildfire in 2012. In the Bighorn Mountains, we conducted surveys within the Gilead Fire boundary. We placed sites across the burned area to ensure sampling occurred across the burn. Transects traversed suitable habitat and followed topographical features on the landscape.

In the Casper Mountain area, surveys were conducted within the Sheep Herder Complex Fire boundary. We placed transects within suitable habitat on private land accessible to the surveyor.

In the Laramie Peak area, surveys were conducted within the Cow Camp and Arapaho Fire boundaries. We randomly selected sites in a Geographic Information System (GIS) so sites were within these burn boundaries and on publically accessible land. Sites consisted of two parallel north – south or east – west transects 1 km in length separated by 250 m. Each transect consisted of five points placed 250 m apart. We also conducted surveys along publicly accessible roads within the burn boundaries.

For all call-playback surveys, observers navigated to the location of the playback survey and waited at least one minute before beginning broadcasting an approximately 30-second sequence of a Black-backed Woodpecker drumming and calling followed by one minute of silence. Surveyors repeated this sequence four times at each survey point, and documented any response to the broadcast call from any woodpecker

species. Observers recorded the type of response (visual, drum, call, or any combination of the three), the species that responded to the broadcast call, and the confidence of species identification (low, medium, or high).

Results

In 2013, we conducted a total of 191 surveys for the Black-backed Woodpecker. During these surveys, observers detected 79 woodpeckers representing seven species. No Black-backed Woodpeckers were heard or observed at any location.

We conducted a total of 30 call-playback surveys on four transects within the Gilead fire boundary in the Bighorn Mountains. During these surveys, observers detected 15 woodpeckers of two species (Table 1).

We surveyed a total of five transects on Casper Mountain, and detected four woodpeckers representing two different species (Table 2).

We conducted a total of 156 call-playback surveys near Laramie Peak. Of these, 26 were mobile call-playback surveys. Twelve woodpeckers of four different species were detected during these surveys (Table 3). Additionally, we completed 130 call-playback surveys on 14 transects. During these surveys, we detected a total of 48 woodpeckers representing five species (Table 4).

Discussion

The most notable result from these surveys was that no Black-backed Woodpeckers were detected. This suggests that the species may not occupy the areas surveyed. It is important to note that negative call-playback survey results do not conclusively rule out presence of the species. However, evidence from other studies shows that the Black-backed Woodpecker responds readily to broadcast calls, meaning that it is likely to be detected using this method if present in the vicinity of the survey location.

In general, call-playback surveys proved effective in eliciting responses from woodpeckers within these burned areas. We recorded a total of 79 woodpecker detections throughout this study. This suggests that woodpeckers in these areas are numerous. This also supports the notion that the Black-backed Woodpecker does not occur within the areas surveyed. Other researchers have noted frequent and intense interspecific interactions when Black-backed Woodpeckers are present (Short 1974, Dixon and Saab 2000). These interactions are often very conspicuous with loud vocalizations and other auditory and visual events (Short 1974). Furthermore, while the direction of these interactions varies with location and species, the Black-backed Woodpecker is often the aggressor and victor, displacing other woodpecker species. During nesting, the species maintains a relatively large territory and actively supplants other woodpeckers that enter their territory (Short 1974). Assuming behavior is similar across the species range, it is unlikely to observe high numbers of various woodpecker species if Black-backed Woodpeckers maintained a territory near our survey locations.

Results from these surveys suggest that Black-backed Woodpecker distribution in Wyoming is limited to the northwestern mountains and the Black Hills. While negative results are less satisfying than positive results, they are important nonetheless. The apparent absence of the species in the northern Laramie

Mountains and the Bighorn Mountains may lead to different management priorities and practices in these areas.

Acknowledgements

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Tables

Table 1. Woodpecker species and number we detected during call-playback surveys in the Bighorn Mountains, Wyoming in 2013.

Woodpecker Species	Number
American Three-toed Woodpecker	11
Northern Flicker	1
Unknown woodpecker	3

Table 2. Woodpecker species and number we detected during call-playback surveys on Casper Mountain, Wyoming in 2013.

Woodpecker Species	Number
Downy Woodpecker	2
Williamson's Sapsucker	2

Table 3. Woodpecker species and number we detected during mobile call-playback surveys near Laramie Peak, Wyoming in 2013.

Woodpecker Species	Number
American Three-toed Woodpecker	1
Downy Woodpecker	3
Hairy Woodpecker	6
Northern Flicker	2

Table 4. Woodpecker species and number we detected during call-playback surveys near Laramie Peak, Wyoming in 2013.

Woodpecker Species	Number
American Three-toed Woodpecker	2
Downy Woodpecker	3
Hairy Woodpecker	26
Lewis's Woodpecker	3
Northern Flicker	7
Red-naped Sapsucker	1
Unknown woodpecker	6

Figures

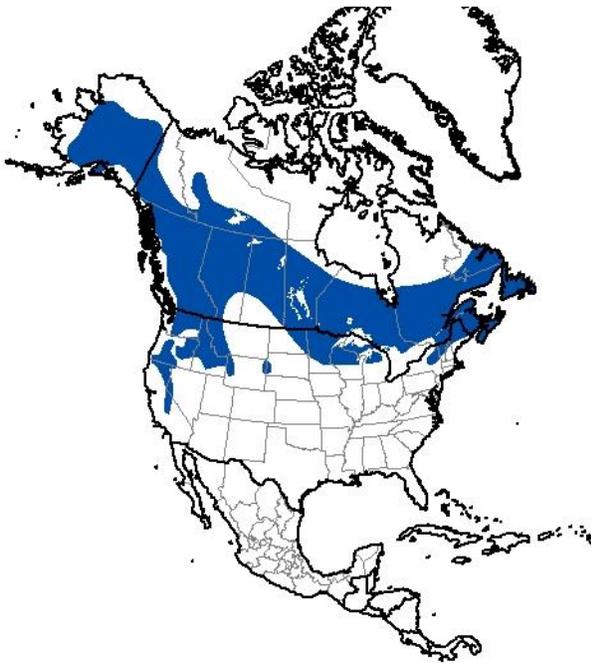


Figure 1. North American distribution of *Picoides arcticus*. Map adapted from Ridgely et al. (2005).

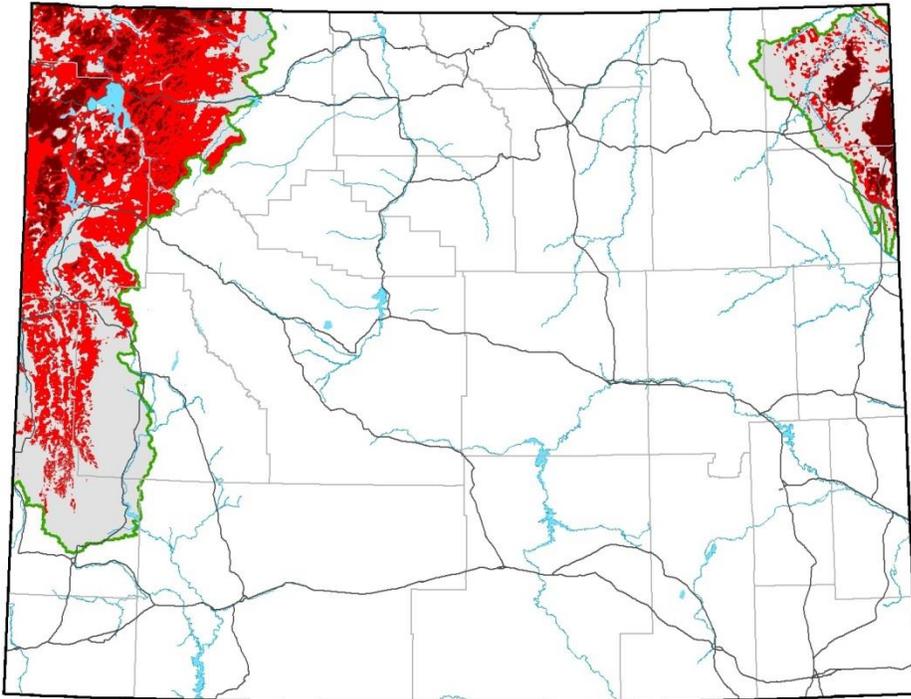


Figure 2. Range and predicted distribution of *Picoides arcticus* in Wyoming. Map from Keinath et al. (2010).

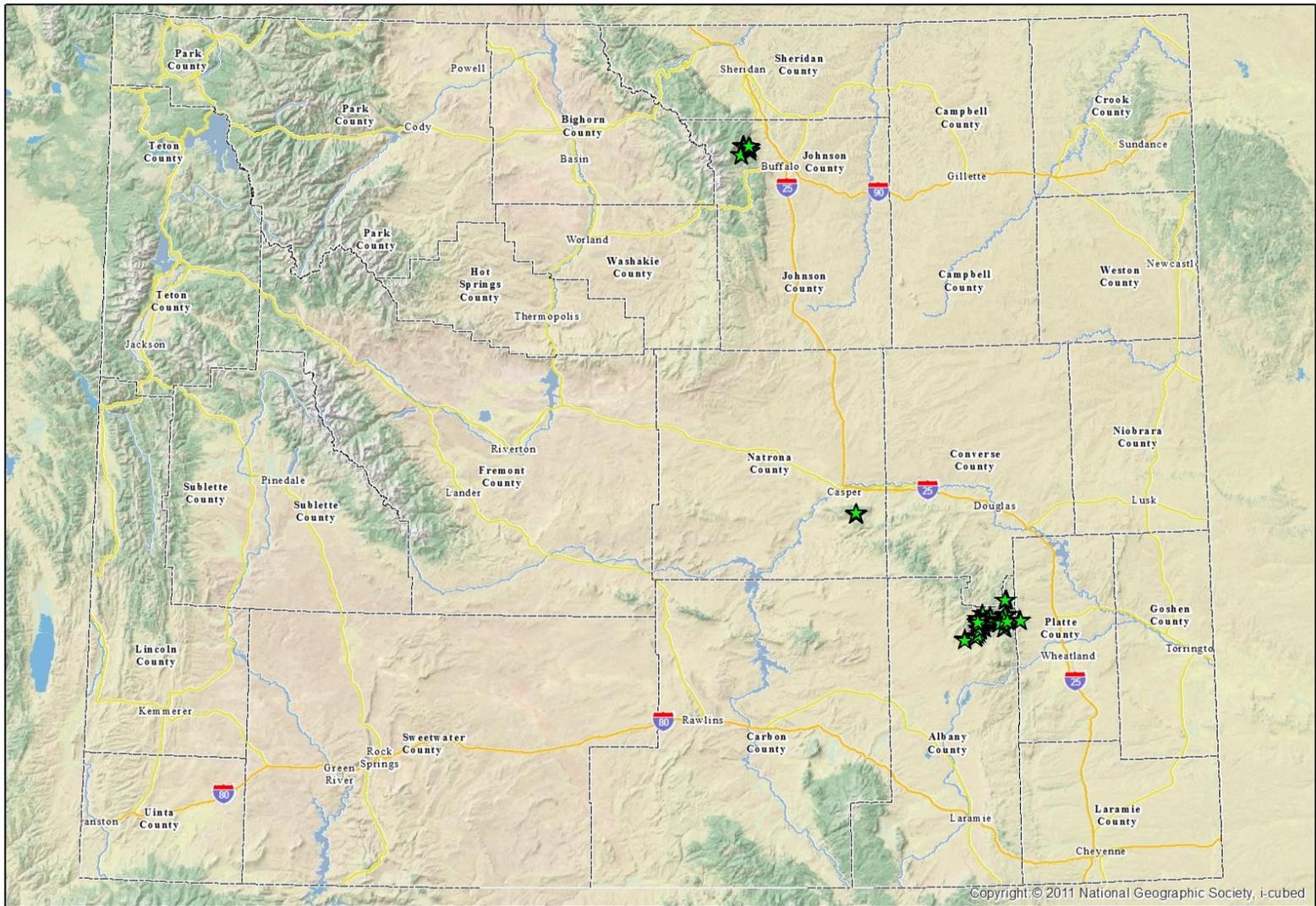
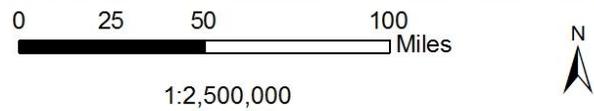


Figure 3. Locations of Black-backed Woodpecker surveys conducted in Wyoming in 2013.



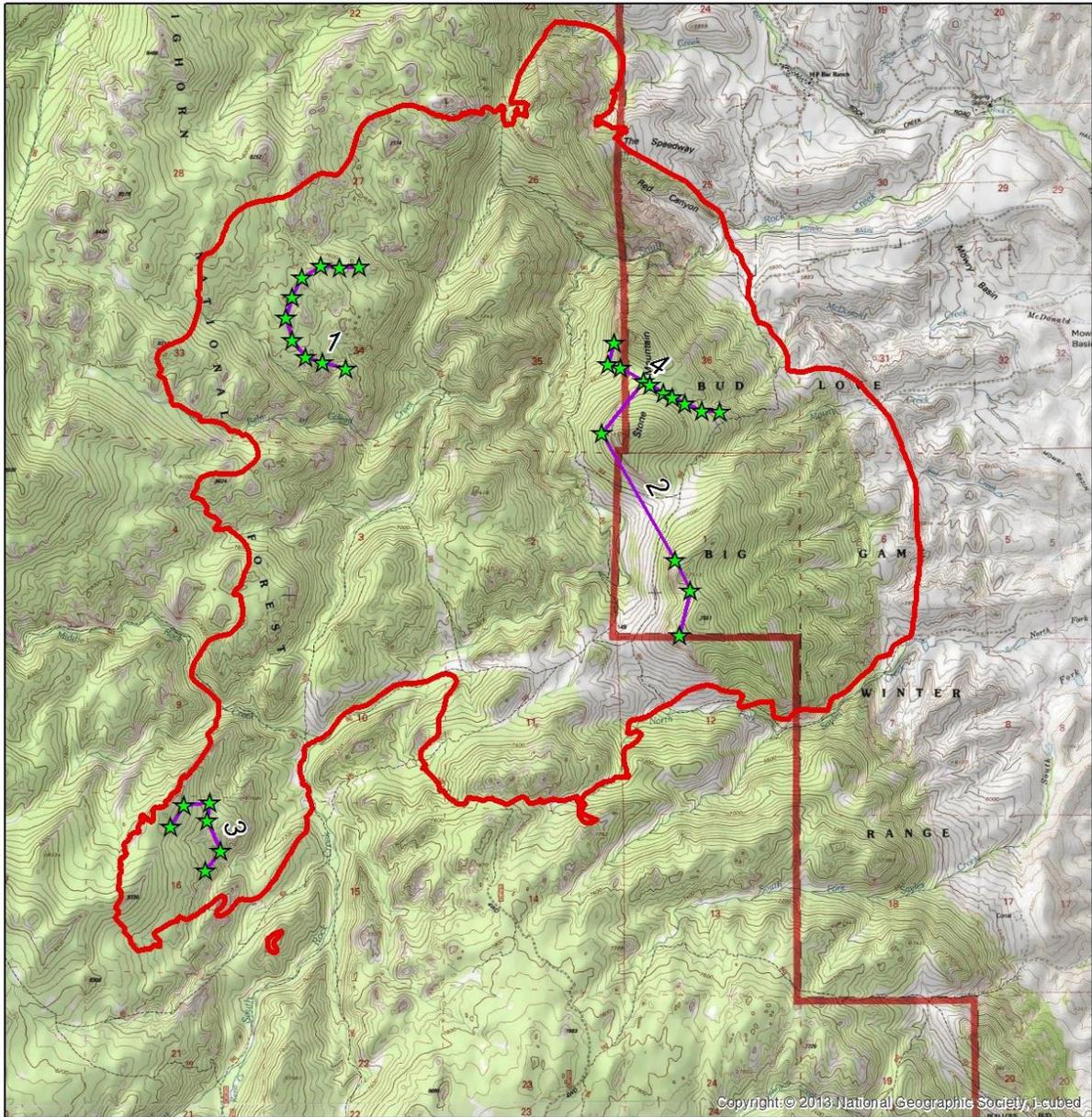
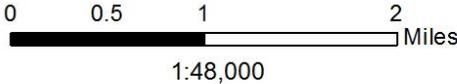
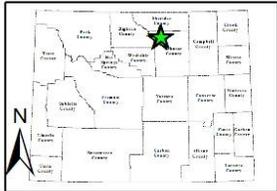


Figure 4. Black-backed Woodpecker surveys conducted within the Gilead Fire in the Bighorn Mountains in 2013.

Legend

- ★ Black-backed Woodpecker Survey Locations
- Black-backed Woodpecker Survey Transects
- Gilead Fire Boundary



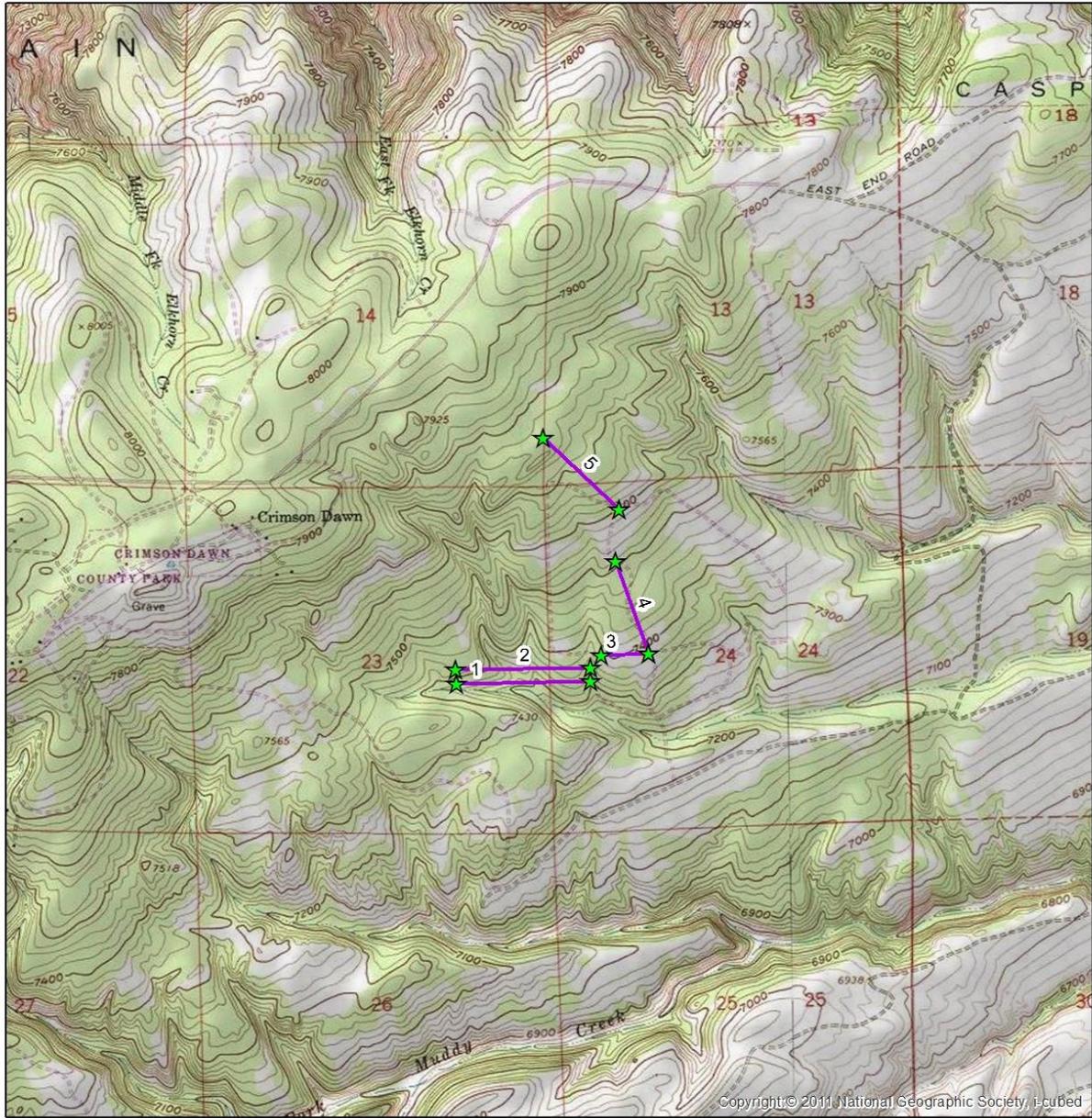
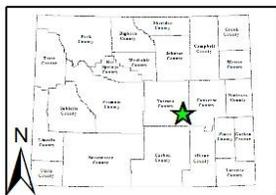
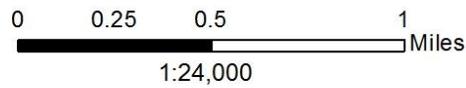


Figure 5. Black-backed Woodpecker surveys conducted on Casper Mountain in 2013.



Legend

- ★ Black-backed Woodpecker Survey Locations
- Black-backed Woodpecker Survey Transects



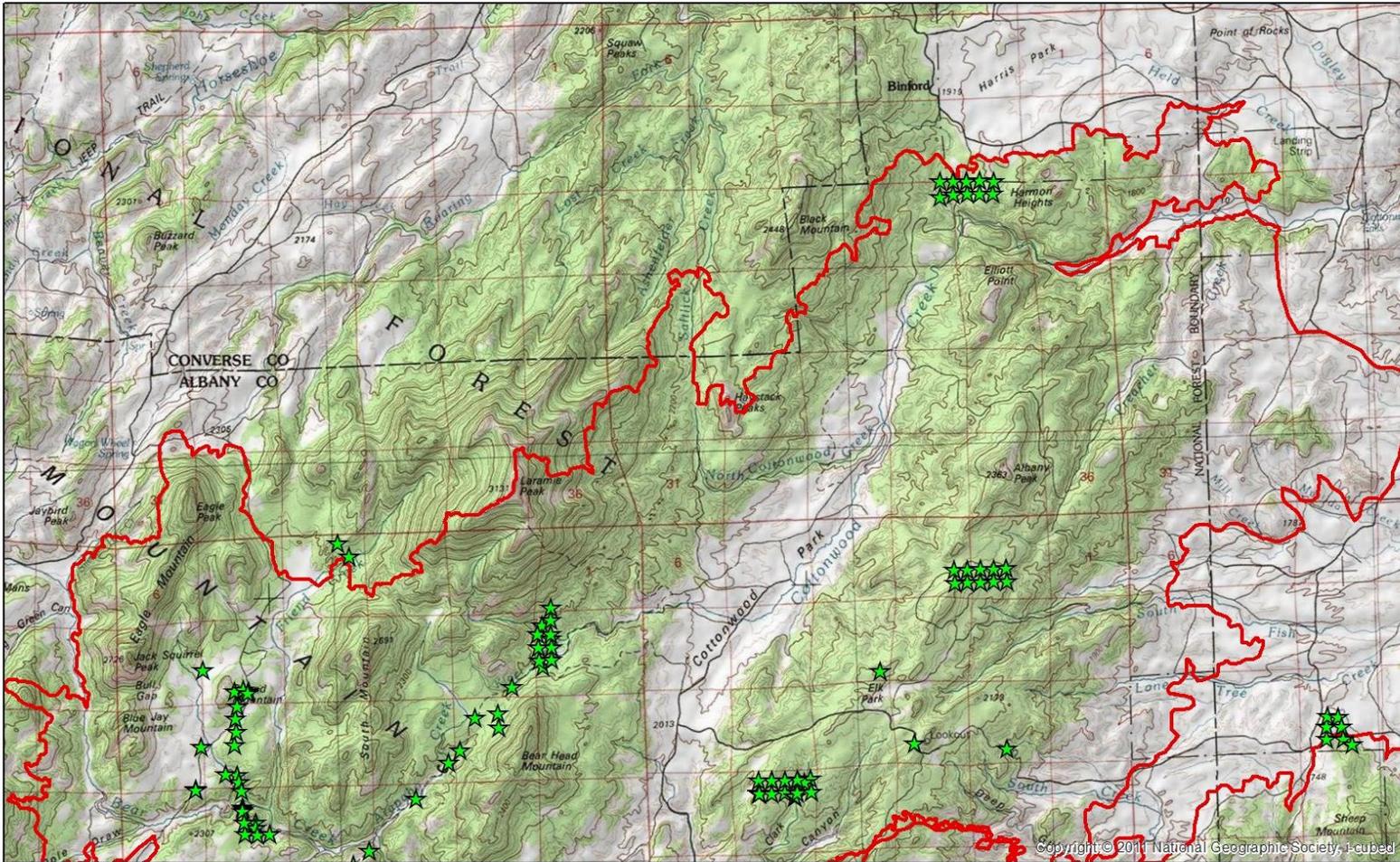
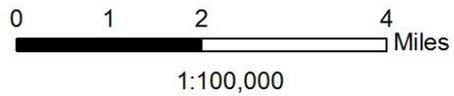
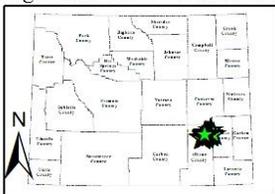


Figure 6a. Northern locations of Black-backed Woodpecker surveys conducted near Laramie Peak, Wyoming in 2013.



Legend

- Laramie Peak Fires
- ★ Black-backed Woodpecker Survey Locations

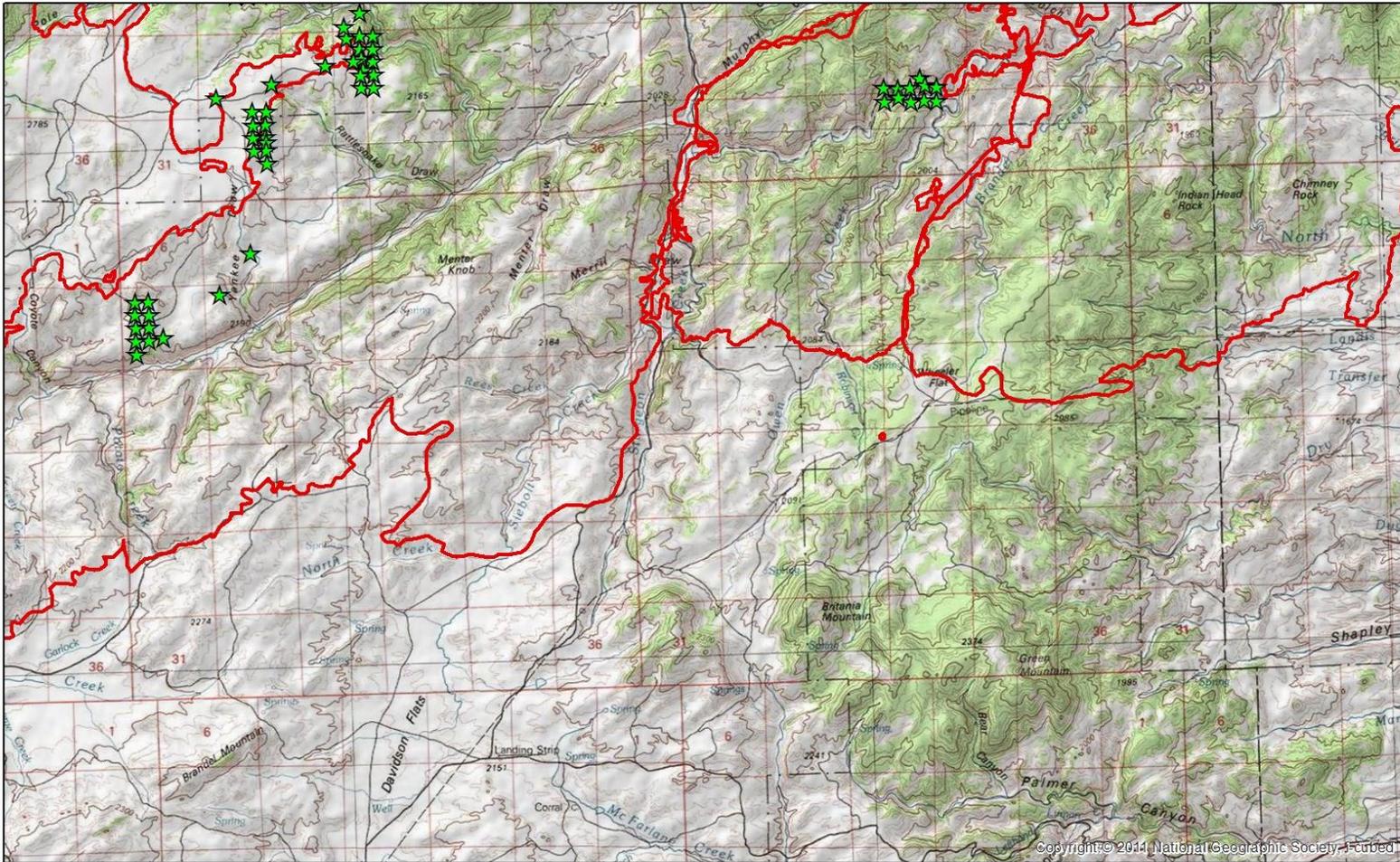
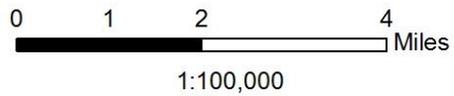
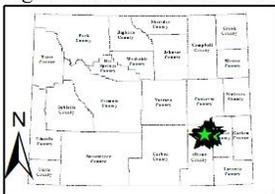


Figure 6b. Southern locations of Black-backed Woodpecker surveys conducted near Laramie Peak, Wyoming in 2013.



Legend

- Laramie Peak Fires
- ★ Black-backed Woodpecker Survey Locations

Appendices

Appendix 1. Transect and point identification, call-playback response, call-playback response type, species responding, confidence level of species identification, date of survey, and location information for Black-backed Woodpecker surveys we conducted in the Bighorn Mountains, Wyoming in 2013.

Transect Point ID	Response	Response Type	Species	Confidence	Date	UTM Zone	UTM_X	UTM_Y
Gilead Fire NW Hot Spot_1	Yes	Visual/Drum	American Three-toed Woodpecker	High	6/25/2013	13	344769	4922969
Gilead Fire NW Hot Spot_2	No				6/25/2013	13	344595	4922963
Gilead Fire NW Hot Spot_3	No				6/25/2013	13	344423	4922991
Gilead Fire NW Hot Spot_4	Yes		Unknown Woodpecker		6/25/2013	13	344250	4922891
Gilead Fire NW Hot Spot_5	Yes	Drum/Visual	American Three-toed Woodpecker	High	6/25/2013	13	344158	4922716
Gilead Fire NW Hot Spot_6	No				6/25/2013	13	344091	4922524
Gilead Fire NW Hot Spot_7	Yes	Visual	American Three-toed Woodpecker	High	6/25/2013	13	344143	4922321
Gilead Fire NW Hot Spot_8	No				6/25/2013	13	344258	4922162
Gilead Fire NW Hot Spot_9	No				6/25/2013	13	344414	4922111
Gilead Fire NW Hot Spot_10	No				6/25/2013	13	344625	4922050
Gilead Fire - Stone MTN_1	Yes	Visual/Drum	American Three-toed Woodpecker	High	6/24/2013	13	347581	4919536
Gilead Fire - Stone MTN_2	Yes	Visual/Drum	American Three-toed Woodpecker	High	6/24/2013	13	347692	4919933
Gilead Fire - Stone MTN_3	Yes	Visual/Drum	American Three-toed Woodpecker	High	6/24/2013	13	347560	4920220
Gilead Fire - Stone MTN_4	Yes	Visual/Drum	American Three-toed Woodpecker	High	6/24/2013	13	346932	4921388
Gilead Fire - Stone MTN_5	Yes	Drum	Unknown Woodpecker		6/24/2013	13	347326	4921853
Gilead Fire - Stone	Yes	Visual/Drum	Northern Flicker	High	6/24/2013	13	347499	4921737

Transect Point ID	Response	Response Type	Species	Confidence	Date	UTM Zone	UTM_X	UTM_Y
MTN_6								
Gilead Fire - SW Hot Spot_1	Yes	Call	Unknown Woodpecker		6/21/2013	13	343204	4917530
Gilead Fire - SW Hot Spot_2	Yes	Visual	American Three-toed Woodpecker	High	6/21/2013	13	343350	4917700
Gilead Fire - SW Hot Spot_3	No				6/21/2013	13	343240	4917980
Gilead Fire - SW Hot Spot_4	No				6/21/2013	13	343270	4918140
Gilead Fire - SW Hot Spot_5	No				6/21/2013	13	343030	4918130
Gilead Fire - SW Hot Spot_6	No				6/21/2013	13	342900	4917933
Stone MTN_1	Yes	Visual	American Three-toed Woodpecker	High	6/19/2013	13	348007	4921550
Stone MTN_2	No				6/19/2013	13	347844	4921570
Stone MTN_3	Yes	Visual	American Three-toed Woodpecker	High	6/19/2013	13	347696	4921639
Stone MTN_4	No				6/19/2013	13	347583	4921695
Stone MTN_5	No				6/19/2013	13	347381	4921817
Stone MTN_6	No				6/19/2013	13	347119	4921980
Stone MTN_7	Yes	Visual	American Three-toed Woodpecker	High	6/19/2013	13	347004	4922013
Stone MTN_8	No				6/19/2013	13	347069	4922211

Appendix 2. Transect and point identification, call-playback response, call-playback response type, species responding, confidence level of species identification, date of survey, and location information for Black-backed Woodpecker surveys we conducted on Casper Mountain, Wyoming in 2013.

Transect Point ID	Response	Response Type	Species	Confidence	Date	UTM Zone	UTM_X	UTM_Y
1 Start	No				6/17/2013	13	396726	4731313
1 End	No				6/17/2013	13	396114	4731322
2 Start	No				6/17/2013	13	396726	4731375
2 End	No				6/17/2013	13	396113	4731386
3 Start	No				6/17/2013	13	396776	4731429
3 End	No				6/17/2013	13	396990	4731431
4 Start	No				6/17/2013	13	396990	4731431
4 End	No				6/17/2013	13	396852	4731854
5 Start	Yes	Visual	Downy Woodpecker	High	6/17/2013	13	396876	4732090
5 End	Yes	Visual	Downy Woodpecker	High	6/17/2013	13	396540	4732428
5 Start	Yes	Visual	Williamson's Sapsucker	High	6/17/2013	13	396876	4732090
5 End	Yes	Visual	Williamson's Sapsucker	High	6/17/2013	13	396540	4732428

Appendix 3. Transect and point identification, call-playback response, call-playback response type, species responding, confidence level of species identification, date of survey, and location information for Black-backed Woodpecker surveys we conducted in the Laramie Peak area, Wyoming in 2013.

Transect Point ID	Response	Response Type	Species	Confidence	Date	UTM Zone	UTM_X	UTM_Y
BBWO-39-10	Yes	Visual	Unknown Woodpecker		6/10/2013	13	450739	4665049
BBWO-39-8	No				6/10/2013	13	450736	4665301
BBWO-39-6	No				6/10/2013	13	450736	4665550
BBWO-39-4	No				6/10/2013	13	450736	4665803
BBWO-39-2	Yes	Drum	Unknown Woodpecker	High	6/10/2013	13	450723	4666043
BBWO-39-1	Yes	Call	Unknown Woodpecker	High	6/10/2013	13	450485	4666065
BBWO-39-3	No				6/10/2013	13	450484	4665809
BBWO-39-5	No				6/10/2013	13	450487	4665552
BBWO-39-7	No				6/10/2013	13	450484	4665300
BBWO-39-9	Yes	Call	Northern Flicker	High	6/10/2013	13	450490	4665051
BBWO-39-9	Yes	Visual	Northern Flicker	High	6/10/2013	13	450493	4665052
BBWO-38-10	Yes	Call	Hairy Woodpecker	High	6/11/2013	13	456530	4666580
BBWO-38-10	Yes	Visual	Hairy Woodpecker	High	6/11/2013	13	456530	4666581
BBWO-38-8	No				6/11/2013	13	456261	4666530
BBWO-38-6	No				6/11/2013	13	456262	4666784
BBWO-38-4	No				6/11/2013	13	456269	4667031
BBWO-38-2	Yes	Call	Downy Woodpecker	Low	6/11/2013	13	456260	4667280
BBWO-38-1	No				6/11/2013	13	456005	4667274
BBWO-38-3	No				6/11/2013	13	456011	4667033
BBWO-38-5	No				6/11/2013	13	456009	4666781
BBWO-38-7	No				6/11/2013	13	456008	4666530
BBWO-38-9	No				6/11/2013	13	456011	4666279
BBWO-33-1	No				6/12/2013	13	470523	4670967
BBWO-33-2	No				6/12/2013	13	470793	4670954
BBWO-33-3	No				6/12/2013	13	471039	4670957

Transect Point ID	Response	Response Type	Species	Confidence	Date	UTM Zone	UTM_X	UTM_Y
BBWO-33-4	No				6/12/2013	13	471224	4671137
BBWO-33-4	No				6/12/2013	13	471320	4671003
BBWO-33-5	No				6/12/2013	13	471538	4670962
BBWO-33-10	No				6/12/2013	13	471539	4670699
BBWO-33-9	Yes	Call	Unknown Woodpecker	High	6/12/2013	13	471293	4670718
BBWO-33-8	No				6/12/2013	13	471043	4670691
BBWO-33-7	No				6/12/2013	13	470810	4670772
BBWO-33-6	No				6/12/2013	13	470540	4670709
BBWO-18-1	No				6/13/2013	13	471900	4677791
BBWO-18-2	Yes	Visual	American Three-toed Woodpecker	Low	6/13/2013	13	472151	4677789
BBWO-18-3	No				6/13/2013	13	472400	4677789
BBWO-18-4	No				6/13/2013	13	472654	4677783
BBWO-18-5	No				6/13/2013	13	472899	4677786
BBWO-18-10	No				6/13/2013	13	472901	4677542
BBWO-18-9	No				6/13/2013	13	472652	4677541
BBWO-18-8	No				6/13/2013	13	472402	4677541
BBWO-18-7	Yes	Drum	Unknown Woodpecker		6/13/2013	13	472149	4677541
BBWO-18-6	No				6/13/2013	13	471902	4677541
BBWO-5-8	Yes	Visual	Unknown Woodpecker	High	6/13/2013	13	472360	4685004
BBWO-5-9	No				6/13/2013	13	472605	4685001
BBWO-5-10	Yes	Call		High	6/13/2013	13	472857	4684998
BBWO-5-5	No				6/13/2013	13	472874	4685233
BBWO-5-4	No				6/13/2013	13	472606	4685248
BBWO-5-3	Yes	Visual	Hairy Woodpecker	High	6/13/2013	13	472356	4685250
BBWO-5-3	Yes	Call	Hairy Woodpecker	High	6/13/2013	13	472356	4685251
BBWO-5-2	No				6/13/2013	13	472098	4685252
BBWO-5-1	No				6/13/2013	13	471851	4685254
BBWO-5-6	No				6/13/2013	13	471839	4684965

Transect Point ID	Response	Response Type	Species	Confidence	Date	UTM Zone	UTM_X	UTM_Y
BBWO-5-7	No				6/13/2013	13	472094	4684996
BBWO-25-5	Yes	Call	Hairy Woodpecker	Med	6/14/2013	13	469016	4673850
BBWO-25-a	No				6/14/2013	13	468901	4673800
BBWO-25-4	Yes	Drum	Hairy Woodpecker	High	6/14/2013	13	468768	4673849
BBWO-25-3	Yes	Call	Hairy Woodpecker	High	6/14/2013	13	468518	4673845
BBWO-25-2	Yes	Visual	Hairy Woodpecker	High	6/14/2013	13	468270	4673848
BBWO-25-2	Yes	Call	Hairy Woodpecker	High	6/14/2013	13	468271	4673849
BBWO-25-1	Yes	Call	Hairy Woodpecker	Low	6/14/2013	13	468024	4673852
BBWO-25-6	Yes	Call	Hairy Woodpecker	Med	6/14/2013	13	468016	4673611
BBWO-25-6	Yes	Drum	Hairy Woodpecker	Low	6/14/2013	13	468019	4673603
BBWO-25-6	Yes	Call	Hairy Woodpecker	High	6/14/2013	13	468020	4673603
BBWO-25-6	Yes	Visual	Hairy Woodpecker	High	6/14/2013	13	468020	4673603
BBWO-25-7	No				6/14/2013	13	468268	4673599
BBWO-25-8	Yes	Call	Hairy Woodpecker	Med	6/14/2013	13	468518	4673600
BBWO-25-b	Yes	Call	Lewis's Woodpecker	High	6/14/2013	13	468697	4673520
BBWO-25-b	Yes	Drum	Lewis's Woodpecker	High	6/14/2013	13	468699	4673521
BBWO-25-9	Yes	Visual	Lewis's Woodpecker	Low	6/14/2013	13	468764	4673597
BBWO-25-10	No				6/14/2013	13	469020	4673605
BBWO-26-6	No				6/14/2013	13	478968	4674318
BBWO-26-4	No				6/14/2013	13	478971	4674563
BBWO-26-2	No				6/14/2013	13	478994	4674762
BBWO-26-1	No				6/14/2013	13	479193	4674735
BBWO-26-3	No				6/14/2013	13	479257	4674558
BBWO-26-5	Yes	Call	Northern Flicker	High	6/14/2013	13	479276	4674324
BBWO-26-7	No				6/14/2013	13	479445	4674205
BBWO-28-6	Yes	Call	Hairy Woodpecker	Med	6/19/2013	13	460728	4671778
BBWO-28-1	Yes	Visual	Northern Flicker	High	6/19/2013	13	460478	4672280
BBWO-28-3	Yes	Call	Northern Flicker	High	6/19/2013	13	460471	4672020

Transect Point ID	Response	Response Type	Species	Confidence	Date	UTM Zone	UTM_X	UTM_Y
BBWO-28-5b	Yes	Visual	Hairy Woodpecker	High	6/19/2013	13	460512	4671818
BBWO-28-5c	Yes	Visual	Northern Flicker	High	6/19/2013	13	460513	4671819
BBWO-28-5d	Yes	Drum	RedNaped Sapsucker	Med	6/19/2013	13	460509	4671827
BBWO-28-7	Yes	Drum	Downy Woodpecker	Low	6/19/2013	13	460529	4671618
BBWO-22-1	No				6/19/2013	13	463048	4675297
BBWO-22-6	No				6/19/2013	13	463050	4675025
BBWO-28-2	No				6/19/2013	13	460728	4672273
BBWO-28-4	No				6/19/2013	13	460735	4672010
BBWO-28-8	No				6/19/2013	13	460728	4671523
BBWO-28-9	No				6/19/2013	13	460479	4671274
BBWO-28-10	No				6/19/2013	13	460728	4671267
BBWO-28-7	No				6/19/2013	13	460478	4671518
BBWO-19-9	Yes	Visual	Hairy Woodpecker	Med	6/20/2013	13	463866	4676277
BBWO-19-3	No				6/20/2013	13	463949	4676957
BBWO-19-2	Yes	Visual	Hairy Woodpecker	High	6/20/2013	13	464123	4677298
BBWO-19-6	Yes	Visual	Hairy Woodpecker	Low	6/20/2013	13	464097	4676694
BBWO-19-8	No				6/20/2013	13	464112	4676532
BBWO-19-10	No				6/20/2013	13	464106	4676296
BBWO-19-3	No				6/20/2013	13	463855	4676532
BBWO-19-5	No				6/20/2013	13	463847	4676786
BBWO-19-4	No				6/20/2013	13	464108	4677053
BBWO-19-6	No				6/20/2013	13	464102	4676790
BBWO-31-4	No				6/20/2013	13	458627	4670622
BBWO-31-6	No				6/20/2013	13	458615	4670376
BBWO-31-8	No				6/20/2013	13	458626	4670127
BBWO-31-10	No				6/20/2013	13	458629	4669873
BBWO-31-1	No				6/20/2013	13	458379	4670874
BBWO-31-2	No				6/20/2013	13	458638	4670873

Transect Point ID	Response	Response Type	Species	Confidence	Date	UTM Zone	UTM_X	UTM_Y
BBWO-31-3	No				6/20/2013	13	458380	4670611
BBWO-31-5	No				6/20/2013	13	458380	4670377
BBWO-31-7	No				6/20/2013	13	458381	4670110
BBWO-21-9	Yes	Call	Hairy Woodpecker	Med	6/21/2013	13	457969	4674832
BBWO-21-7	Yes	Drum	Hairy Woodpecker	Low	6/21/2013	13	458013	4675081
BBWO-21-5	Yes	Call	Downy Woodpecker	Low	6/21/2013	13	457998	4675339
BBWO-21-3	No				6/21/2013	13	458031	4675577
BBWO-21-1	No				6/21/2013	13	457993	4675868
BBWO-21-2	No				6/21/2013	13	458245	4675815
BBWO-24-1	No				6/21/2013	13	458000	4674257
BBWO-24-6b	Yes	Visual	Hairy Woodpecker	Med	6/21/2013	13	458026	4674113
BBWO-24-6	No				6/21/2013	13	458078	4673939
BBWO-27-1b	Yes	Visual	Hairy Woodpecker	High	6/21/2013	13	458091	4673628
BBWO-27-1c	Yes	Visual	American Three-toed Woodpecker	High	6/21/2013	13	458098	4673598
BBWO-27-1c	Yes	Visual	Hairy Woodpecker	High	6/21/2013	13	458079	4673564
BBWO-27-2	No				6/21/2013	13	458332	4673336
BBWO-27-2b	Yes	Visual	Hairy Woodpecker	High	6/21/2013	13	458328	4673234
BBWO-27-7	No				6/21/2013	13	458359	4673096
BBWO-27-8	No				6/21/2013	13	458598	4673101
BBWO-27-6	No				6/21/2013	13	458116	4673113
BBWO-27-1	Yes	Drum	Northern Flicker	Low	6/21/2013	13	458111	4673342

Appendix 4. Mobile transect and point identification, call-playback response, call-playback response type, species responding, confidence level of species identification, date of survey, and location of Black-backed Woodpecker surveys we conducted in the Laramie Peak area, Wyoming in 2013.

Transect Point ID	Response	Response Type	Species	Confidence	Date	UTM Zone	UTM_X	UTM_Y
esb-01	Yes	Call	Downy Woodpecker	Low	6/10/2013	13	458263	4675863
esb-02	Yes	Call	American Three-toed Woodpecker	High	6/10/2013	13	457197	4674001
esb-02	Yes	Drum	Hairy Woodpecker	Med	6/10/2013	13	457204	4673996
esb-03	No				6/11/2013	13	458259	4668158
esb-04	No				6/11/2013	13	457635	4667378
esb-05	Yes	Call	Hairy Woodpecker	Low	6/13/2013	13	470410	4675876
esb-06	No				6/14/2013	13	471031	4674478
esb-07	No				6/14/2013	13	472806	4674320
edk-01	No				6/19/2013	13	460354	4671780
edk-02	Yes	Visual	Hairy Woodpecker	High	6/19/2013	13	460225	4672226
edk-03	Yes	Visual	Northern Flicker	High	6/19/2013	13	460176	4672453
edk-04	No				6/19/2013	13	460498	4672719
edk-05	No				6/19/2013	13	461417	4673687
edk-07	No				6/19/2013	13	462295	4674599
edk-08	Yes	Call	Hairy Woodpecker	Low	6/19/2013	13	463929	4676160
edk-09	Yes	Call	Hairy Woodpecker	High	6/20/2013	13	463328	4675786
edk-10	No				6/20/2013	13	462608	4675210
edk-11	Yes	Call	Northern Flicker	Low	6/20/2013	13	462071	4674378
edk-12	No				6/20/2013	13	459800	4671723
edk-13	No				6/20/2013	13	458766	4671397
edk-13	No				6/20/2013	13	458620	4670285
edk-14	No				6/20/2013	13	457688	4671147
edk-15	No				6/20/2013	13	457392	4676292
edk-16	Yes	Visual	Hairy Woodpecker	High	6/20/2013	13	457318	4674815
edk-17	Yes	Visual	Downy Woodpecker	High	6/21/2013	13	458166	4675895
edk-18	Yes	Call	Downy Woodpecker	Med	6/21/2013	13	457775	4674275

