

**Susitna-Watana Hydroelectric Project  
(FERC No. 14241)**

**Population Ecology of Willow Ptarmigan  
in Game Management Unit 13  
Study Plan Section 10.17**

**Part D: Supplemental Information to  
June 2014 Initial Study Report**

Prepared for

Alaska Energy Authority



**SUSITNA-WATANA HYDRO**

*Clean, reliable energy for the next 100 years.*

Prepared by

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## TABLE OF CONTENTS

<b>1. Introduction.....</b>	<b>1</b>
<b>2. Background .....</b>	<b>1</b>
2.1. Purpose of Study .....	1
2.2. Study Components .....	2
<b>3. Status, Highlighted Results, and Achievements.....</b>	<b>2</b>
<b>4. Summary of Study 10.17 Documents .....</b>	<b>3</b>
<b>5. New Study Documentation Supplementing the ISR.....</b>	<b>4</b>
<b>6. Variances .....</b>	<b>4</b>
6.1. 2013 Study Season .....	4
6.2. 2014 – 2015 Study Season .....	4
<b>7. Study Plan Modifications .....</b>	<b>4</b>
7.1. Modifications Identified in ISR.....	4
7.2. Modifications Identified since the June 2014 ISR .....	5
<b>8. Steps to Complete the Study .....</b>	<b>5</b>

## 1. INTRODUCTION

Section 1 (Part A) of the June 2014 ISR for the Population Ecology of Willow Ptarmigan in Game Management Unit 13 Study (Study 10.17) details the development of this study from the Revised Study Plan (RSP) in 2012, through the end of the 2013 study season. Section 7 of the ISR (Part C), filed in June 2014, sets forth AEA's plan and schedule, at that time, for completing this study and meeting the objectives of the RSP.

As detailed in Section 2.2 of the ISR Part D Overview, various circumstances have required AEA to extend the original timeframe for completing the Commission-approved Study Plan. However, AEA has made meaningful progress with Study 10.17 since the filing of the ISR in June 2014. As detailed below, AEA's recent activities for Study 10.17 have consisted of the following:

- On October 21, 2014, AEA held an ISR meeting for the Botanical and Wildlife studies.
- The study team deployed a total of 148 radio collars (85 in 2014 and 63 through June 30, 2015) at 5 capture locations within the study area.
- In 2014, a total of 10 complete aerial telemetry surveys were flown over the study area. As of June 30, 2015 a total of five aerial telemetry surveys have been flown.
- Additional capture and radio collaring occurred at five sites in August 2015 (Denali Highway, Busch Creek, upper Fog Creek, Butte Lake, and Big Lake).

The primary purpose of this Part D Supplemental Information to the ISR is to report on the implementation of the Study Plan from the filing of the ISR in June 2014, through the filing of this ISR Part D. In light of this additional implementation, this Part D also identifies AEA's plans for completing Study 10.17 in a manner that meets the objectives of the Commission-approved Study Plan.

## 2. BACKGROUND

### 2.1. Purpose of Study

The goal of this study is to provide the necessary data to evaluate the potential effects of the proposed Project on Willow Ptarmigan, the predominant species of upland game bird in the Project area and surrounding areas. The area of interest consists of GMU subunits 13A and 13E.

The study objectives are established in RSP Section 10.17.1:

- Determine the seasonal distribution of Willow Ptarmigan in the Project area.
- Determine the seasonal migratory patterns of Willow Ptarmigan that occur in the Project area.

- Estimate the abundance of Willow Ptarmigan in the Project area during the breeding season and during the fall.
- Estimate seasonal survival of Willow Ptarmigan.

## 2.2. Study Components

This study consists of the following components:

- Annual capture and radio-tagging in each year of the two-year study.
- Aerial surveys to relocate tagged ptarmigan throughout the year, at least six times: two in late summer, two in midwinter, and two in early spring.
- Aerial transect surveys in November/December and March in each year of the two-year study.

## 3. STATUS, HIGHLIGHTED RESULTS, AND ACHIEVEMENTS

The following tasks were completed in 2013 and reported in Part A of the ISR for Study 10.17:

- During spring and summer 2013, the study team captured and radio-tagged 41 Willow Ptarmigan. A total of 22 ptarmigan were captured at Busch Creek and 19 were captured at the Denali Highway site. Radio-tag deployment was limited by weather and late breeding in 2013.
- The study team located radio-tagged Willow Ptarmigan within 24 h of capture and during regularly scheduled fixed-wing flights in July, September, October, and December.
- The study team flew aerial transect surveys in January to assess the abundance and density of ptarmigan using line-transect or repeat-count techniques.
- By September 18, 2013, 19 percent of adults and 11 percent of juveniles were dead. The mortality rate at the road-accessible study site was substantially higher (37 percent) than that at the inaccessible site (7 percent).
- Most (85 percent) birds made only minimal movements (<1 km) after radio tags were deployed, but one ptarmigan at the inaccessible site moved >1 km (8.8 km) and five ptarmigan at the road-accessible site moved >1 km (8.2 km, 6.6 km, 6.2 km, 4.2 km, 5.4 km).

The study team has completed the following activities for Study 10.17 since the June 2014 filing of the ISR:

- A total of 148 radio collars have been deployed (85 in 2014 and 63 through 30 June, 2015) at 5 capture locations within the study area.
  - 31 Willow Ptarmigan were radio collared at Busch Creek, 19 at the Denali Highway, 14 at upper Fog Lakes, 14 at Big Lake, and 7 at Butte Lake.

- 52 collars were deployed in the spring and 33 in August 2014.
- Additional capture and radio collaring occurred at five sites in August 2015 (Denali Highway, Busch Creek, upper Fog Creek, Butte Lake, and Big Lake).
- In 2014, 10 complete aerial telemetry surveys were flown over the study area. As of June 30, 2015, a total of 5 aerial telemetry surveys have been flown.
- All radio collared Willow Ptarmigan that were monitored for a full year moved >1 km from the capture sites.
- Winter movements have been substantial, with several birds travelling more than 60 km from natal/breeding sites.
- All Willow Ptarmigan that survived through the winter have returned to within 10 km of their natal/breeding site in the subsequent spring, suggesting high breeding-site fidelity and relatively short natal dispersal distances.

#### 4. SUMMARY OF STUDY 10.17 DOCUMENTS

Since filing of the RSP in 2012, AEA and FERC have prepared several documents pertaining to this study. To aid review by FERC staff and licensing participants, each of these documents is listed below. Each of these documents is accessible on AEA's Project licensing website (<http://www.susitna-watanahydro.org/type/documents/>) by clicking on the entry in the "Link" column in the table. In addition, these documents are available on FERC's eLibrary system (<http://www.ferc.gov/docs-filing/elibrary.asp>), in Docket No. P-14241.

Title	Date	Description	Link
10.17. Population Ecology of Willow Ptarmigan in Game Management Unit 13 (Revised Study Plan),	12/14/2012	This document presents the plan for this study, including goals, objectives, the study area, and proposed study methods for willow ptarmigan.	<a href="#">RSP for Study 10.17</a>
FERC Study Plan Determination for Study 10.17	2/1/2013	This document presents FERC approval of Study 10.17, which approved AEA's Revised Study Plan with recommended adjustments.	<a href="#">FERC SPD for Study 10.17</a>
Draft Initial Study Report for Study 10.17	2/3/2014	This draft of the ISR summarized the study methods and variances during the 2013 study season, and presented preliminary data collected for Study 10.17. This draft ISR was later republished as Part A of the final ISR.	<a href="#">Draft ISR for Study 10.17</a>
Initial Study Report for Study 10.17	6/3/2014	This document is the Initial Study Report (Parts A, B and C) for Study 10.17. Part A republishes the Draft ISR. Part B identifies supplemental information and errata in Part A. Part C presents study modifications and plans for completing the study.	<a href="#">ISR Part A for Study 10.17</a> <a href="#">ISR Part B for Study 10.17</a> <a href="#">ISR Part C for Study 10.17</a>

Title	Date	Description	Link
Initial Study Report Meetings, October 21, 2014 (Parts A and B)	11/15/2014	Transcripts and AEA's agenda and PowerPoint presentations for the ISR meeting concerning the Project wildlife studies filed by AEA.	<a href="#">Transcripts from ISR Meeting</a> <a href="#">Materials from ISR Meeting</a>

## 5. NEW STUDY DOCUMENTATION SUPPLEMENTING THE ISR

Because the work and data analysis for this study are ongoing as of the filing of this ISR Part D, AEA has not prepared an implementation report for Study 10.17 at this time. Thus, no additional reports or documents are available to supplement the ISR for Study 10.17.

## 6. VARIANCES

### 6.1. 2013 Study Season

The following variances are reported in the June 2014 ISR:

- Due to the late spring, delayed snow melt, inclement weather, and subsequent transportation difficulties in 2013, fewer radio tags were deployed than planned (RSP Section 10.17.4.1).
- For these same reasons, the capture locations planned at upper Fog Lakes and Jay Creek (RSP Sections 10.17.3) were not visited, but another capture location was added along the Denali Highway.
- Due to lack of access to most capture sites in the spring, the study team also attempted to capture and radio-tag Willow Ptarmigan in August 2013 at the Denali Highway and Busch Creek locations.
- Aerial transect flights (RSP Section 10.17.4.3) were rescheduled from September to November/December 2013 so that they would occur during more optimal snow conditions. However, weather conditions prevented surveys in the November/December timeframe and the study team completed this survey in January 2014.

### 6.2. 2014 – 2015 Study Season

AEA encountered no variances while implementing this study in 2014 - 2015.

## 7. STUDY PLAN MODIFICATIONS

### 7.1. Modifications Identified in ISR

As detailed in Section 7 of the ISR (Part C), AEA plans no modifications of the methods for this study.

## **7.2. Modifications Identified since the June 2014 ISR**

AEA plans no modifications of the methods for this study.

## **8. STEPS TO COMPLETE THE STUDY**

In light of the variances and modifications described above, the steps necessary for AEA to complete this study are summarized below. As necessary and appropriate, these steps have been updated from those appearing in Section 7 of the ISR (Part C).

- Continuation of aerial surveys for collared birds (RSP Section 10.17.4.2).
- Analysis of radio telemetry data (RSP Section 10.17.4.4).