Whip-poor-will Surveys in West Haven and Fair Haven Vermont
2014

Introduction

In response to documented declines in the Whip-poor-will (WPW) population in Vermont, the species has been listed as Threatened in the state. A statewide, annual WPW survey is carried out by volunteers coordinated by the Vermont Center for Ecostudies on 17 routes throughout the state, in regions with coarse habitat characteristics (low elevation, matrix of field and forest) considered potentially suitable for WPW. The survey is useful for detecting dramatic changes in the Vermont population and contributes to broader efforts to detect regional changes in the northeastern population. The program does not, however, provide population estimates. As a first step towards a better understanding of the habitat characteristics WPWs select in Vermont, and obtaining more precise counts, and therefore where additional survey effort may be focused, we conducted a more rigorous survey in a region of the state known to be a "hotspot" for WPW.

Methods

Our objective was to obtain an estimate of the number of WPW in the West Haven and Fair Haven area where the species is known to be relatively abundant, probably more abundant than anywhere else in Vermont. We surveyed WPWs from 11 May to 18 June 2014 in potentially suitable habitat, mostly lowlands with a mix of forest and open land (or open lands with adjacent forested hillsides). Survey areas were not randomly selected and the time spent on any one survey was not constrained. We scouted potential habitat during the day to locate potential habitat to survey. Our focal area was in and around West Haven, beginning with the West Haven WPW annual route (flooded dirt roads surrounding Bald Mountain) and continuing as far north (along the Poultney River to Benson Landing) and east (Fair Haven Airport) as time allowed (Fig. 1). Because our objective was to detect as many WPWs as possible, the geographic and temporal span of a survey was dynamic and depended on variables such as weather, detection of WPWs, and calling time.

We conducted surveys after sunset and before sunrise, after WPWs had begun calling, and under suitable weather conditions and moon phases, when WPWs are known to call more frequently. Specifically, surveys were conducted on nights during the full moon and the waxing and waning gibbous moons.

Surveys consisted of walking and driving in potential habitat and listening for singing birds. When possible, individual birds were mapped using "triangulation mapping" in which observers stood 250 meters apart, took compass bearings on a calling bird, plotted these on a map, and used the intersection of the bearings as the approximate location of the bird. Due to the difficult terrain and lack of pre-existing trails, triangulation was not always feasible, and we used bearings and estimated distance from two observers standing at the same location. We arrived at a predetermined site ~30 minutes prior to

beginning the survey to allow birds to settle. We then listened for WPW for 10 minutes, then proceeded to the next location, which was often determined by detection of a different WPW. If we did not hear a WPW, we continued for up to 0.25 miles farther to listen until the survey window closed or unsuitable weather forced us to end the survey. When both members of the team detected a WPW, each person took a bearing and estimated distance to the WPW for purposes of comparison. When multiple birds were detected, each team member took a bearing and distance for each individual bird. We continued the survey until both observers came to a consensus on bearing and distance for each bird. For each bird we recorded time of detection, lat/long at which the observers are standing, the bearing to the WPW, and a rough estimate of distance to the WPW.

Results and Discussion

We conducted 24 surveys and detected 74 WPW individuals (Table 1). Of these, 28 were detected along the West Haven annual route, which we surveyed intensively over the course of six days. Access to portions of this route was not possible in May, so the six days were spread out over a two-month period. The northern portion (north of Coggman Pond) was predominantly farmland and yielded detection of only two different birds. The southern half of the route, almost completely uninhabited supported 26 detected birds. Though the key topographic feature surrounded by the route is Bald Mountain, open fields border most of the oak, pine, and cedar forest; many of which are hayed or planted with corn. The southern tip is dominated by cattail marsh and seasonally flooded forest. WPWs inhabited the entire southern portion of the route and only became scarce as the terrain changed to rural farmland.

Although the area surveyed likely supports a greater density of WPWs than any other area of the state, that it supports at least 74 singing individuals in this area suggests that there may be more WPWs in the state of Vermont than previously estimated. Any WPWs detected far enough away that they may have been located in New York Sate were not counted. In addition, birds that were detected in the same area on different nights or birds that were heard singing from two different locations during the same survey were only counted once. This is therefore a conservative estimate. WPW was recently listed as state Threatened based on a primary criterion that the breeding population in the state was less than 300 reproducing females, and a secondary criterion that populations had been consistently declining in the Northeast. Documentation for that listing cited only 3-6 breeding pairs in the West Haven area, based on the annual survey route. Based on conservative extrapolations of data available at that time, the state population was estimated to be approximately 170 - 180 females. All population estimates assume one female for every singing males detected, which may be an overestimate. Additional surveys in hotspots may provide a more accurate minimum statewide population estimate.

The majority of the WPWs detected were in areas adjacent to cleared land and with more than one WPW calling. We assumed that we would have fewer detections of WPW in populated farm areas. However, some of our more successful surveys were in areas we

had not intended to examine due to what seemed like a lack of suitable habitat. The largest number of WPWs found in a single survey was in a rural, heavily farmed area east of the original route. We were unable to do an in depth analysis of the habitat due to time constraints, but a cursory survey of the area established that the terrain was entirely farmland (livestock) surrounded by forest. Fourteen different WPWs were detected during that survey. It could be that the WPWs were selecting areas to breed based on the forest nesting habitat rather than on the type of open field where they forage. From the West Haven route north to Benson Landing, we often found WPWs in clusters. Long stretches of what seemed like suitable habitat would sometimes yield no detections, but where they were present, we usually heard several.

Fair Haven was characterized mostly as urban/suburban areas surrounded by rocky oak and pine forest. Populated areas had higher detections than we expected, yet when we surveyed areas considered more suitable for WPWs (Rattlesnake Ridge and surrounding rural farmland), we found none. Because Fair Haven was a secondary focus for this survey effort, more surveys in this area may yield additional WPW detections.

Given our methods yielded greater WPW numbers and a more complete assessment of the population status in the West Haven area, similar surveys in other potential hotspots may be warranted. Additionally, we recommend gaining more insight into habitat preferences in occupied and unoccupied habitat in order to help assess habitat capacity for WPWs in Vermont and fine-tune targeted areas for monitoring. There were several areas that contained the requisite coarse habitat characteristics to sustain a WPW population, but we were unable to visit them due to time limitations. In addition, we were unable to collect detailed habitat data. More detailed habitat data will provide a better understanding of the habitats used as well as potentially uncover the cause of their absence in what seems to be suitable habitat.

Table 1. Locations of singing Whip-poor-wills in Fair Haven and West Haven Vermont in 2014

Date	Time	XCOORD	YCOORD
11-May-14	2042	-73.382851	43.608604
11-May-14	2042	-73.384956	43.608483
11-May-14	2042	-73.382702	43.602314
11-May-14	2051	-73.386449	43.605891
11-May-14	2128	-73.37858	43.611357
11-May-14	2138	-73.385952	43.610872
11-May-14	2221	-73.38207	43.625319
12-May-14	346	-73.404776	43.571478
12-May-14	432	-73.407275	43.574159

12-May-14	449	-73.401201	43.573733
12-May-14	2119	-73.396	43.570708
18-May-14	424	-73.410674	43.629272
19-May-14	156	-73.367795	43.660205
19-May-14	202	-73.361997	43.659839
19-May-14	214	-73.364106	43.65698
19-May-14	219	-73.36823	43.658625
19-May-14	245	-73.358098	43.663656
19-May-14	305	-73.359284	43.664709
19-May-14	315	-73.370893	43.660525
19-May-14	316	-73.372726	43.659703
19-May-14	322	-73.378441	43.663793
19-May-14	324	-73.377673	43.666406
19-May-14	336	-73.387738	43.657715
19-May-14	348	-73.3933	43.6482
19-May-14	404	-73.374377	43.651021
19-May-14	415	-73.360673	43.653711
6-Jun-14	420	-73.41861	43.63133
6-Jun-14	441	-73.419348	43.627785
6-Jun-14	2100	-73.422154	43.591906
6-Jun-14	2111	-73.412505	43.590267
6-Jun-14	2200	-73.416333	43.578389
7-Jun-14	331	-73.3545	43.626167
7-Jun-14	422	-73.375828	43.683051
7-Jun-14	428	-73.371256	43.683048
7-Jun-14	438	-73.368445	43.683928
7-Jun-14	2105	-73.387611	43.589694
7-Jun-14	2114	-73.389553	43.59227
7-Jun-14	2122	-73.386634	43.59373
7-Jun-14	2146	-73.388408	43.595251
7-Jun-14	2146	-73.387282	43.597235
8-Jun-14	350	-73.37782	43.609531
8-Jun-14	400	-73.376506	43.609843
8-Jun-14	407	-73.377841	43.610644
8-Jun-14	415	-73.380042	43.6126
10-Jun-14	410	-73.344872	43.706834
10-Jun-14	412	-73.345268	43.708015
10-Jun-14	2211	-73.226189	43.578679
10-Jun-14	2213	-73.225638	43.58069

10-Jun-14	2220	-73.230683	43.586928
14-Jun-14	2102	-73.368181	43.714519
14-Jun-14	2111	-73.367121	43.724424
15-Jun-14	400	-73.364398	43.733623
15-Jun-14	400	-73.363158	43.73188
15-Jun-14	407	-73.365017	43.735988
15-Jun-14	420	-73.363114	43.744263
15-Jun-14	436	-73.357884	43.709878
15-Jun-14	2108	-73.383731	43.58568
15-Jun-14	2123	-73.38783	43.583792
15-Jun-14	2131	-73.391472	43.584215
16-Jun-14	259	-73.39201	43.570783
16-Jun-14	311	-73.383761	43.577535
16-Jun-14	2103	-73.256674	43.621824
16-Jun-14	2122	-73.267601	43.624963
16-Jun-14	2129	-73.260994	43.620197
16-Jun-14	2139	-73.269955	43.618657
16-Jun-14	2140	-73.269561	43.616844
17-Jun-14	250	-73.258411	43.614723
17-Jun-14	304	-73.253841	43.625891
17-Jun-14	304	-73.254007	43.626872
17-Jun-14	311	-73.25255	43.627653
17-Jun-14	311	-73.253214	43.628014
17-Jun-14	320	-73.258086	43.63147
17-Jun-14	320	-73.249765	43.634021
17-Jun-14	325	-73.248052	43.634423

Figure 1. Points surveyed during 2014 Whip-poor-will survey. Red lines represent routes traveled. Black dots represent WPW detections. All detections are represented in this map. Neither NY birds nor multiple detections of the same bird have been excluded.