A BREEDING SEASON STATUS SURVEY OF THE UPLAND SANDPIPER IN VERMONT

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A roadside survey of 35 Vermont towns between 3-11 June 1989 located 77 adult and 2 juvenile upland sandpipers at 43 sites. Addison and Chittenden Counties recorded the highest densities, with 29 and 13 birds, respectively. Of 8 towns that had also been surveyed in 1988, 5 reported upland sandpipers in both years, but individuals were observed at the same location each year in only one town. All but 2 sightings occurred in agricultural habitats, primarily hayfields and pastures. Several factors combined to limit the survey's precision, and our estimate of 35-40 breeding pairs statewide is undoubtedly low.

We believe that the upland sandpiper's legal status as a threatened species in Vermont is fully warranted. We suggest a scaled-down, but more thorough annual survey of 4-6 towns and intensive studies of breeding ecology and habitat use at several known nesting sites. More detailed data are needed before specific management guidelines can be formulated.

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INTRODUCTION

Current breeding populations of the upland sandpiper (Bartramia longicauda) in eastern North America are very localized, and much of the breeding range has been reduced by changes in the extensive short grassland habitats favored by the species (Johnsgard 1981, White 1983). Over much of its former eastern range, the upland sandpiper is declining, stable at low levels or absent (Tate 1986, Carter 1989). Conversion of its preferred native and non-native grasslands to cultivated cropland, heavily grazed rangeland and residential or commercial developments appears to pose the most serious threat to breeding populations of this species (Ailes 1980, White 1983, Osborne and Peterson 1984).

The breeding distribution of upland sandpipers in Vermont is restricted to the Champlain Lowlands and Lake Memphremagog region (Kibbe 1985). Within these areas, the birds appear to require extensive, flat hayfields and pastures for nesting (Kibbe 1985). Upland sandpipers occurred in only 7% of the priority blocks during the Vermont Breeding Bird Atlas, with confirmed breeding in only 5 blocks and total occurrence in 13 blocks. Although historical data are sparse, this species was probably absent from Vermont prior to European settlement in the mid-1700s, when the state was virtually blanketed by forests. Upland sandpipers presumably invaded Vermont following clearing of the land for farming and may have reached a peak of abundance in the late 1800s, when open lands covered 65% of the state. With reforestation in the 1900s and the accelerated conversion of farms to other land uses, upland sandpipers appear to have experienced a recent decline in Vermont. The species is now included on the state threatened species list.

The status of upland sandpipers in other Northeast states and provinces ranges from endangered to absent to uncertain (Table 1). In almost all cases, breeding populations are highly localized and restricted to specific habitats, such as airfields, blueberry barrens or agricultural hayfields and pastures (Table 1). However, few states have undertaken systematic surveys of breeding upland sandpiper populations. In 1988 the Vermont Institute of Natural Science (VINS) and the Vermont Natural Heritage Program (VNHP) coordinated a late June survey of 11 Champlain Valley towns with recent occurrences of upland sandpipers. The present study was conducted as a follow-up to the 1988 census, with two primary objectives: 1) to assess the breeding distribution and abundance of upland sandpipers in the Champlain Valley and Memphremagog region of Vermont, and 2) to identify important habitats and specific nesting sites for this species as targets for protection and management efforts.

METHODS

We selected 35 towns in the Champlain Valley and Memphremagog regions of Vermont to be surveyed between 3-11 June 1989 (Figure 1). Selections were based either on known historic occurrences of upland sandpipers or on prevalence of suitable nesting habitat. From 50 prospective volunteer observers contacted in late winter, we assigned teams of one or more to survey 28 towns. VINS and VNHP staff covered the remaining 7 towns for which no volunteers were available. In 4 towns that contained extensive areas of potential sandpiper habitat, survey efforts were divided between two teams of observers. Observers were requested to cover their assigned territory thoroughly on at least one day during the survey period.

We provided each observer with: 1) a photocopied town map outlining the assigned area of coverage and denoting previous upland sandpiper sightings, if any; 2) survey instructions detailing how and when to conduct the census; 3) field data forms (Appendix A); and 4) a cassette tape of upland sandpiper breeding calls, to be broadcast at regular intervals in suitable habitat in hopes of eliciting responses from nearby birds. Data collected for each sandpiper sighting included number and ages of birds, indications of breeding, exact location, habitat description, and ownership and current land use of the site. All sightings were plotted on the field maps. We requested that all maps and data forms be completed and returned to VINS, regardless of whether or not upland sandpipers were located.

We compared 1989 results with those from the similar, but less standardized, 1988 survey of 11 Vermont towns. The 1988 survey was conducted between 20-28 June and did not use broadcasts of taped calls, but as in 1989, all upland sandpiper sightings were plotted on field maps. The 1988 results, while not strictly comparable to those from 1989, do allow an examination of breeding site fidelity in those towns that received similar route coverage in each year.

RESULTS

Seventy-seven adult and 2 juvenile upland sandpipers were located at 43 sites in 1989 (Table 2). Of these sightings, 61 were reported by observers involved in the formal survey effort, while 18 were reported either by unofficial observers (15) or in towns not included as part of the survey (3). One report outside the survey period, of a pair with 2 young in North Hero on 25 June, is included in the totals because the same observer had recorded a probable sighting at the site on 11 June. Of the 77 adult upland sandpipers, 54 were encountered either as single birds (22) or in pairs (32). The remaining sightings consisted of 3 groups of 3 birds and 2 groups of 7 individuals.

Of the 23 towns in which sightings occurred, 19 lie within the Champlain Lowlands region of Vermont (Figure 1). Addison and Chittenden counties recorded the highest numbers of upland sandpipers, 29 and 13, respectively, followed by Orleans (11), Franklin (9), Grand Isle (8), Rutland (4), and Caledonia (1) counties. Of the 25 towns reporting data on number of miles and stops, 1078 miles were covered, with 1121 stops for broadcasting and/or searching. Estimated percent road coverage ranged from 25% for Irasburg to 100% for the relatively small towns of Waltham and Weybridge. The mean coverage for 22 towns reporting such data was 74%.

Several factors combined to limit the comprehensiveness and precision of the survey. Some upland sandpipers that were present in surveyed towns undoubtedly escaped detection. Lack of adequate access to, and sheer extent of, all suitable habitat made it impossible to thoroughly census each town. Excessively hot weather and strong winds on several days probably decreased the activity and detectability of some birds. Stage of breeding, which was probably mid to late incubation for nesting birds, may not have been optimal for eliciting responses. Many observers noted that the taped calls were not of high enough volume to be audible over distances of about 100 meters. Several observers reported being certain that they had missed detecting upland sandpipers that were present on their survey routes.

We received habitat descriptions for 42 of the 43 upland sandpiper sightings in 1989 (Table 3). All but two were in actively farmed areas, and most of these were estimated to consist of more than 100 acres. The two sightings reported from non-agricultural habitats, a mowed lawn and a small airport, were both adjacent to farmland. A surprising discovery was that of an apparent nesting pair observed on consecutive days in a 1-acre uncultivated field near Taft's Corner in Williston. This still-active farm was in the process of subdivision, surrounded by a condominium construction site and other recent building developments. Most observers reported that the habitats in which they found uplands did not appear to be threatened by imminent subdivision or development.

Of the 8 towns surveyed in 1988 and 1989, 5 reported upland sandpipers in both years (Table 4). However, numbers of individuals differed significantly between years, and uplands were found at the same location each year in only one town, Glover. One town reported a bird in 1988 but not 1989, while two others reported birds in 1989 only.

DISCUSSION AND RECOMMENDATIONS

Territory extent
Vocalization
Perches
Habits
Colonies

Prior to this 1989 survey, no systematic data had been collected on the abundance of breeding upland sandpipers in Vermont. Distribution of the species had been well documented during the Vermont Breeding Bird Atlas Project, but no population estimates were available. During an informal 1988 survey, 31 upland sandpipers were located in 8 towns, suggesting that this state-threatened species might be more abundant than implied by its legal status. The 1989 survey yielded 77 adult and 2 juvenile upland sandpipers in 23 of 35 towns that were censused. These results indicate that Vermont supports a larger and more widespread upland sandpiper population than was previously known.

Unfortunately, results of this survey do not permit an accurate estimate of the statewide upland sandpiper population. Coverage of survey routes was not consistent. In many towns, observers were unable to census the full extent of suitable habitat. Inaccessibility of large blocks of agricultural habitat often precluded complete coverage. Even some roadside fields were difficult to survey thoroughly because of their large size and observer time constraints. Some areas of the state containing potential upland sandpiper habitat were not covered at all; for example, several towns in the Champlain and Connecticut River valleys. Problems with production and use of the taped calls probably caused some birds to be missed. For these reasons, we feel that this census underestimates the statewide population.

Reasons for underestimation

We conservatively estimate that the 77 adult upland sandpipers located during this survey represent 35-40 breeding pairs. This is based on our assumption that each of the 21 multiple-bird sightings (2 or more individuals) and 15-20 of the 22 single-bird sightings represented nesting pairs. Some of the single birds may have been non-breeders, lacking a mate, a territory or both. We suspect that some of the assemblages of 3-7 adults contained members of two or more breeding pairs. Given these individuals, the numbers of upland sandpipers that went undetected on survey routes, and the numbers inhabiting areas that were not censused, we believe that the statewide breeding population exceeds 50 pairs and could be as high as 60-70 pairs.

Get rid of so many breeding pairs

We suggest that future survey efforts incorporate a scaled-down census focused on 4-6 towns. These towns should be selected on the basis of known breeding sandpiper occurrence and/or extensive suitable habitat. Within each town, a series of intensive surveys should be conducted during the nesting and chick-rearing seasons. Selected known breeding sites should be

Future Survey dates

intensively monitored to document nesting chronology and success, habitat selection and use, and responses to land use practices. Such an annual census, with follow-up monitoring of individual pairs, will enable assessment of local trends in sandpiper abundance, site fidelity and habitat use. This work will require a greater commitment by volunteers and more rigorous standardization of methods. An annual training workshop for participants might be necessary. Following each year's survey, volunteers would meet with project staff to review findings, evaluate methods and discuss management recommendations.

Little is known about habitat characteristics and land-use practices at specific upland sandpiper sites in Vermont from year to year. Our results indicate that upland sandpipers prefer hayfields and pastures for nesting, and less commonly use airport grasslands, cleared fields, uncultivated fields and residential lawns. Habitat data from this survey are not detailed enough to permit analysis of vegetation composition and structure, or of acreage of breeding sites. Some less commonly used habitats, such as residential lawns and cleared fields, may be used only for feeding. In midwestern states, grasslands and hayfields with moderate vegetation density are generally favored for nesting. Grass-alfalfa hayfields are often too densely vegetated for upland sandpiper nesting (Higgins and Kirsch 1975). Upland sandpipers typically select nest sites in vegetative cover between 25-40 cm (10-16 in) in height at the time of nest initiation (Higgins and Kirsch 1975, Ailes 1980).

Upland sandpipers prefer open grasslands with low vegetative cover for feeding and brood-rearing (Ailes 1980, Huber and Steuter 1984). These habitats are usually adjacent to nesting fields and include mowed hayfields, burned grasslands, airports and lawns. In general, optimum breeding and feeding habitat appears to consist of a mosaic of shortgrass fields and tallgrass hayfields that are idle or only lightly managed and remain undisturbed during the actual nesting period.

Comparing our 1988 and 1989 survey data, it is difficult to draw conclusions about upland sandpiper nest site fidelity in Vermont. Of the 8 towns surveyed in both years, only one site reported birds in each year. Although upland sandpipers are known to exhibit strong site tenacity in parts of their breeding range (e.g. Buss and Hawkins 1939, Ailes 1980), our results suggest that some Vermont birds may shift nesting sites between years. The species' loosely colonial breeding habits and possible changes in land management practices on some of their preferred nesting areas may favor opportunistic shifts in site selection between years. It is important to note, however, that without more precise data on population densities, home range sizes, nest site locations and land use practices, any inferences on nest site fidelity are speculative.

While these survey results indicate a larger upland sandpiper breeding population than previously known, we believe that this species deserves its threatened status in Vermont. Land use changes caused by a declining agricultural economy and subdivision of farms for residential, commercial and industrial development may, in time, reduce current sandpiper numbers if protection and management programs are not implemented. At present, we do not have adequate information to support a change in legal status of the upland sandpiper in Vermont. Continued annual monitoring of selected towns and known breeding sites are necessary to evaluate population trends and the availability of suitable habitat.

Legal status

Because upland sandpipers require relatively large fields with a mosaic of short and tallgrass habitat, it will be necessary to work closely with farm owners to coordinate agricultural land use practices with sandpiper management needs. We suggest that owners of several farms where upland sandpipers currently nest be contacted to enlist their cooperation in intensive studies of this species' breeding ecology. Data gathered from such studies would be integral to the formulation of management guidelines.

Management

In summary, we recommend the following:

1. Four to six towns should be surveyed annually for nesting upland sandpipers, with the pilot year scheduled for 1990.
2. Specific known upland sandpiper breeding sites should be selected for studies of nesting ecology and habitat use.
3. No change in legal status should be adopted until additional data are accumulated.
4. Until more specific management guidelines can be formulated, we make the following recommendations, some of which are summarized in Carter (1989) for the upland sandpiper:
    a. No construction activities should take place in fields where upland sandpipers nest. Development of adjacent agricultural land should be carefully evaluated on a case-by-case basis.
    b. Whenever possible, nesting fields should be maintained in current agricultural use. Fields used by upland sandpipers for breeding should not be rotated to cropland unless there are suitable, adjacent fields available for nesting.
    c. In cases where mowing or burning may be necessary to maintain suitable nesting habitat, nest fields should be mowed or burned at least once every 2 years.
    d. All haying operations in nesting fields should be curtailed between 1 May and 15 July.
    e. If cutting operations must be conducted during the 1 May - 15 July breeding period, then cutting parts should be elevated 3-6 inches above the ground to avoid damage to nest contents.

Questions

ACKNOWLEDGMENTS

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Figure 1.

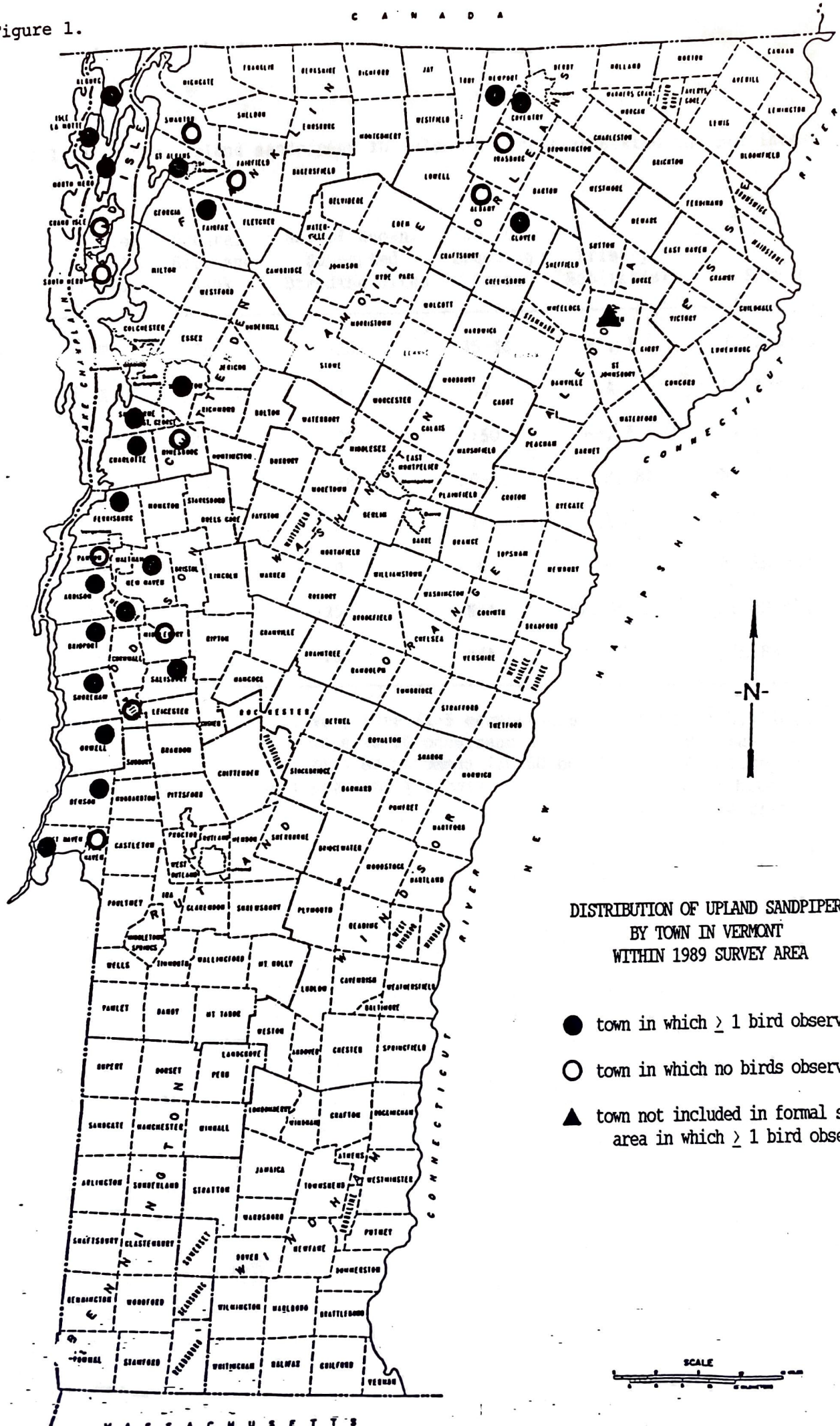
CANADA
NEW YORK
MASSACHUSETTS
NEW HAMPSHIRE
CONNECTICUT RIVER
LAKE CHAMPLAIN
-N-
DISTRIBUTION OF UPLAND SANDPIPERS
BY TOWN IN VERMONT
WITHIN 1989 SURVEY AREA
town in which ≥ 1 bird observed
town in which no birds observed
town not included in formal surve
area in which ≥ 1 bird observed
SCALE

Table 1. Status of upland sandpipers in selected Northeast states and provinces.

State	State Legal Status	Natural Heritage Rank	No. of Known/ Suspected Breeding Sites	No. of Breeding Pairs	Primary Habitat(s)	Source
VT	T	S1	>20	35-40	HF, P	This study
NH	E	S2	1	7	A	NH Audubon
ME	I	S2S3	>25	>50	BB, A	J. Despres
MA	E	S1	7-8	50-60	A, P, HF	MA Audubon
CT	E	S1	2	7-8	A	CT NHP
RI	T	S1	0	0	-	D. Emerson
NY	SC	S4	>250	N/A	HF, P, A	NY BBAtlas
QUE	-	S3S4	>100	N/A	HF, P	QUE BBAtlas

E : endangered
T : threatened
SC : special concern
I : indeterminate

S1 : very rare (1-5 occurrences)
S2 : rare (6-20 occurrences)
S3 : rare or uncommon (20-50 occ.)
S4 : apparently secure

HF : hayfield
P : pasture
A : airport
BB : blueberry barren

Table 2. Vermont upland sandpiper survey results, 3-11 June 1989.

Town	# Sites w/ UPSA	# UPSA	# Stops	# Miles	# observers
Fair Haven	0	0 N	14	12	1
Benson	1[a]	1[a] N 3	26	33	2
West Haven	2	4 N	17	12	2
Orwell	4	6 N 9	-	-	2
Shoreham	4	5 3	110	-	3
Whiting	0	0 N	25	18	1
Cornwall	0	0 0 5	-	-	1
Bridport	3	3 0	91	92	4
Addison	1	2 3	56	90	2
New Haven	2	3 2	53	42	4
Panton	0	0 0	-	43	3
Ferrisburg	3	4 17 6	42	68	2
Weybridge	2	9 6	-	30	1
Waltham	0	0 0	-	-	1
Salisbury	1	1 N 8	24	21	1
Middlebury	0	0 N 1	26	15	1
Hinesburg	0	0 N	35	25	3
Charlotte	4	8 N 1	-	-	1
Williston	1	2 6	35	15	1
Shelburne	1[a]	1[a] N	-	-	1
Burlington	1[b]	2[b] N	-	-	1
St. Albans	1[a]	7[a] N 1	-	-	2
Swanton	0	0 N	29	46	2
Fairfax	1[a]	2[a] N	40	75	1
Fairfield	0	0 N	54	74	2
South Hero	0	0 N	18	30	2
Grand Isle	0	0 N	31	36	2
North Hero	1[a]	4[a] 0	50	32	2
Alburg	2	3 4	50	35	2
I. La Motte	1	1 N	38	20	2
Newport	3	4 N	76	50	1
Coventry	1	3 N 5	58	30	1
Irasburg	0	0 N	37	19	2
Albany	0	0 N	50	40	2
Glover	2	4 4	36	23	1
Lyndon	1[b]	1[b] N	-	-	1
Totals	43	79	1121	1078	63

[a] Incidental sightings during survey period by observers not involved in formal survey effort.
[b] Incidental sightings during survey period in town not included as part of formal survey.
\- Data not collected.

Table 3. Habitat distribution of upland sandpipers encountered in Vermont, 3-11 June 1989.

Hayfield	26
Pasture	8
Pasture/hayfield	4
Cleared field	1
Uncultivated field	1
Residential lawn	1
Airport strip	1

Table 4. Comparative upland sandpiper survey results in Vermont, June, 1988 and 1989.

Town	No. of Birds 1988	No. of Birds 1989	1990	No. of Same Sites Both Years
Benson	3	1		0
Orwell	0	6		-
Shoreham	13	5	3	0
Cornwall	1	0	5	-
Bridport	1	3	0	0 (?)
Ferrisburg	12	4	23	0
Williston	0	1	6	-
Glover	1	4	4	1
Totals	31	24		1

Appendix A. Form used by all field observers.

UPLAND SANDPIPER FIELD FORM

PLEASE FILL OUT A FORM FOR EACH SITE WHERE YOU FIND UPLAND SANDPIPERS

Observer(s): _____

Date: _____ Time of survey: _____

Weather: _____

Town: _____ Number of road miles surveyed: _____

Number of stops for scanning/tape broadcasting: _____

****

Give a detailed account of your sandpiper sighting:

Did you see _____ or hear _____ the birds?

Did you use a tape and did birds respond? _____ Y _____ N

Number of adult _____ and juvenile _____ sandpipers.

Approximate age or size of young: _____

Describe the birds' behavior _____

_____

_____

Please give detailed directions to the site (include nearest permanent landmarks, give mileage, provide a map): _____

_____

_____

_____

_____

Please describe the habitat where birds were found: _____

_____

_____

_____

_____

Please estimate the acreage of the habitat: _____

Do you know who owns the site: _____ Y _____ N

If so, please give owner's name, address, and phone #:

_____

_____

What is the current land use of the site? _____

_____

Surrounding land use? _____

_____

If the site is part of a farm, please try and answer the following:

Is the farm currently active? _____ Y _____ N

Is the farm for sale? _____ Y _____ N

Is the site currently being subdivided or developed? _____ Y _____ N

Comments:

PLEASE ATTACH A MAP SHOWING THE ROUTE YOU FOLLOWED AND LOCATIONS WHERE YOU FOUND UPLAND SANDPIPERS. AS MENTIONED ABOVE, IF YOU FOUND BIRDS, PLEASE DRAW A DETAILED MAP SHOWING THE LOCATION SO THAT THE SITE CAN BE RELOCATED. THANK YOU FOR YOUR ASSISTANCE.

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