

2022 Vermont Eastern Meadowlark Monitoring Project



Banded and GPS tagged Eastern Meadowlark singing © Jason Hill

Annual Report to
Vermont Fish & Wildlife Department
Submitted by Kevin Tolan



Introduction and Background (synthesized from Tolan and Hill 2023)

Eastern Meadowlark (*Sturnella magna*) is a migratory blackbird (family Icteridae) with an annual range that extends from northern South America into southern Canada. Eastern Meadowlark is listed as federally Threatened in Canada, Threatened In New Hampshire, and considered a Species of Greatest Conservation Need in Maine, Massachusetts, and New York. They likely became widespread and numerous in Vermont during the severe agriculturally-driven deforestation of the 19th and early 20th centuries, and have rapidly declined since the middle of the 20th century. Vermont's Eastern Meadowlark population underwent a substantial westward shift between the first and second Vermont Breeding Bird Atlases, and are now sparse east of the Green Mountains (Renfrew 2013).

Eastern Meadowlark are partial migrants: some individual birds may remain on the same territory year-round, while other birds may make short- (100s of kilometers) or long-distance (>1000 km) seasonal movements between the breeding and nonbreeding grounds (Hill and Renfrew 2019). Adults of both sexes exhibit a high level of site fidelity, with individuals generally returning to the same breeding locations yearly (Jaster et al. 2022).

Like other grassland ground-nesting species of bird, Eastern Meadowlark are highly specialized to their grassland habitat (Whitman et al. 2013). They're area-sensitive, with the likelihood of site occupancy increasing with patch size (Vickery et al. 1994). The minimum patch size is generally considered to be 15ac, with a pair of Eastern Meadowlark holding a territory of 6-8 acres (Jones and Vickery 1997). Adult abundance is positively correlated with grassland plant diversity and high graminoid cover, with nests built on the ground using interwoven grasses, shielded by dense grass cover. Eastern Meadowlark nests in Vermont ($n = 16$) are typically located in areas with few obstructions of the sky, and a mean openness of at least 79.5° (Keyel et al. 2013).

Based on tracking data, migratory Eastern Meadowlark begin southbound movements prior to November (Hill and Renfrew 2019). They overwinter in open areas such as agricultural fields and marshes (Jaster et al. 2022). In areas where their ranges overlap, they form flocks with the congeneric Western (*Sturnella neglecta*) and Chihuahuan Meadowlark (*Sturnella lilianae*). Eastern Meadowlark are rarely observed in Vermont during the winter, and have been reported from 3 of the past 20 Vermont Christmas Bird Counts (National Audubon Society 2021).

Eastern Meadowlark share the same primary threats as most other grassland bird species: habitat loss and degradation, and agricultural intensification (Hill et al. 2014, North American Bird Conservation Initiative 2022). Changes in land use, such as reforestation, development, solar farm development, and conversion of low-intensity agricultural fields to row crops replaces grassland bird habitat. The fragmentation of large parcels of grasslands further renders the habitat less suitable for Eastern Meadowlark.

Methods

Survey sites were selected a priori based on past Eastern Meadowlark sightings and prior knowledge of occupancy. Suitable habitat surrounding occupied sites, as well as tracts of potential habitat identified using satellite imagery and land cover data, were targeted for additional surveys.

Surveys of at least 20 consecutive minutes were conducted monthly between April and July during peak hours of Eastern Meadowlark activity (sunrise through 9am), when wind and precipitation were light and unlikely to impair the observational period. Surveys were primarily conducted from field edges, such as public roads and trails. Due to the variety of site ownership, topography, and access limitations, both stationary counts and transects were utilized. Supplemental observations were reported opportunistically by participants. Observational data was emailed to the coordinator and/or entered to eBird (ebird.org, Sullivan et al. 2009) and shared with the group account “grasslandbirds”.

Observers were asked to record the date that haying occurred at surveyed sites and adjacent fields. This temporal data was used to determine which sites were unlikely to have successfully fledged young before nest destruction occurred during haying. Following surveys, occupied sites were delineated based on the observed locations of adult individuals and landcover. Occupied sites were defined as sites with Eastern Meadowlark present for at least two consecutive months between May and July, or those with evidence of successful breeding (ie. fledglings or adults carrying food or fecal sacs are observed). A breeding pair was assumed to be present when only one individual (the male) was observed singing.

Results and Discussion

267 Eastern Meadowlark observations were reported in Vermont between 17 March 2022 and 21 August 2022 from 58 observers, totaling 157 total hours of observation time (Figure 1, Table 1, Table 2). Based on these observations, the population size of breeding adult Eastern Meadowlark was estimated to be at least 96 individuals across 37 occupied sites (Figure 2).

The plurality of observations occurred in May, followed by June and April (91, 78, and 76, respectively) (Table 2). Performing two 5 minute listening periods prior to June 15th has been calculated to have a detection probability of >92% for Eastern Meadowlark (Vickery 1995). Our survey methods, utilizing multiple 20+ minute surveys per site during prior to mid-June, likely detected individuals if the site was occupied, especially singing males.

The estimated population at known sites (96) is potentially skewed upwards due to the assumed presence of a pair at each occupied site. However, that number is an overall underestimate of Vermont’s population as a whole. Aural detections of Eastern Meadowlark decreases by ~50% between 125 m and 175 m from the bird to observer (Matthews 2018), reducing the probability of detection for birds in larger fields and away field edges. Since most Eastern Meadowlark observations are made by ear, birds not actively singing during observation periods are more likely to go undetected. Additionally, suitable habitat and survey points may be inaccessible to observers due to access limitations on private or restricted lands.

Individuals began arriving at their breeding grounds in late-March, with the first arrivals of the year reported on 17 March 2022 in Addison and Chittenden Counties (Table 2). Nesting material was first observed being carried in Isle La Motte on 27 April 2022. The earliest date that food for young was observed being carried was 31 May 2022 at two sites, one in Bennington and one in Rutland Counties. Fledglings were first observed on 21 June 2022. A breeding pair present throughout the summer at Kingsland Bay State Park was observed carrying food twice, on 11

June 2022 and 16 August 2022; this suggests that the pair double brooded, or the first nest failed, given the proclivity of Eastern Meadowlark to renest following a first attempt (Jaster et al. 2022). Surveys weren't temporally sufficient to determine the date of nest initiation, or to provide further context regarding breeding phenology.

The majority of occupied sites only hosted a single pair of Eastern Meadowlark. This is assumedly due to the discrete nature and relatively large size of Eastern Meadowlark territories. All occupied sites are contiguous with large (>20ac) hayfields and pastures, with the exception of two specific-use sites: an airport and a college campus (University of Vermont Spatial Analysis Laboratory 2019). The three sites that were estimated to host the most breeding pairs (3) are located in Chittenden, Franklin, and Rutland Counties.

Only two confirmed and one potential breeding site, with 4-6 breeding adults, were reported east of the Green Mountains. Comparatively, 34 sites were reported west of the Greens with an estimated 88 breeding adults. Five counties had no suspected Eastern Meadowlark sites (Table 1). Three of these counties (Orange, Windham, and Windsor) constitute the lower Connecticut River Valley in Vermont, a region with historically high concentrations of grassland-type habitat (Vermont Agency of Natural Resources 2021). Two apparently suitable breeding sites in this region had Eastern Meadowlark observations prior to 2 May 2022, but subsequent surveys yielded no observations.

Land management differed between occupied sites. The majority of sites went unmowed throughout the survey period and two sites were active pastures. A site in Grand Isle County was first cut prior to 24 April 2022, however it remained occupied through at least 11 June 2022. Three sites were cut in approximately the 3rd week of June 2022. While this was likely detrimental to nesting Bobolinks and Savannah Sparrows, Eastern Meadowlark nests in these mid-season mowed fields may have successfully fledged young due to their earlier arrival date.

Three sites are owned, in part or in whole, by state (Kingsland Bay State Park [1 breeding pair], William H. Morse State Airport [1 breeding pair]) or federal (Missisquoi National Wildlife Refuge [3 breeding pairs]) agencies. Eastern Meadowlark were observed at several airports: Rutland Southern Vermont Regional Airport, Edward F. Knapp State Airport, and William H. Morse State Airport. Of these three airports, only Morse State Airport is known to have had successful breeding in 2022. The Eastern Meadowlark population in neighboring New Hampshire is almost entirely relegated to airports (P.H. pers. comm. 2022). This suggests that facilitating grassland bird breeding at airports may be important to their long-term conservation, and should be a priority for future conservation efforts.

Future Directions

Following the inaugural season of Eastern Meadowlark monitoring, future efforts will further document Eastern Meadowlark and their breeding sites. Several regions were under surveyed this season. For instance, suitable habitat in Alburgh went unsurveyed after April. The Lake Memphremagog basin also remains an under-surveyed region with ample potential habitat. Towns such as Alburgh, Brownington, Craftsbury, and Holland will be targeted for surveys in 2022. Additionally, Lamoille County, while containing relatively little suitable grassland bird habitat, had 0 reported surveys in 2022 which resulted in a spatial knowledge gap.

Landcover GIS data, LiDAR, and grassland bird observation records will be used to model prime suitable habitat to inform survey locations. Vermont's Meadowlark also don't reside in a vacuum, and there are several Eastern Meadowlark sites close to the border in neighboring states. We will aim to survey along our borders with New Hampshire and New York for birds which may intermingle or disperse between states.

Continued surveys for dispersed individuals are integral to the recovery of Eastern Meadowlark; newly documented sites have the potential to be protected and productive breeding sites. While data on natal dispersal in Eastern Meadowlark is scant, juveniles seldom disperse further than 5 km from the nesting site within the 90 days following fledging (Kershner et al. 2004). However, only 1 of 343 individuals banded as juveniles were resighted during subsequent years, suggesting that natal dispersal may exceed that distance. Locally, this distance may be limited by Vermont's forested landscape.

Since over 90% of occupied Eastern Meadowlark sites are situated on private land, sustained landowner engagement is key to successfully censusing, and conserving, Vermont's population. Some landowners reported birds that would've otherwise been inaccessible to, or rarely visited by, project surveyors. Additionally, several landowners granted observers access to private lands. Outreach with landowners in the proximity of known Eastern Meadowlark sites will continue to inform them of financial incentive opportunities, management techniques, and how to report their observations.

As per the draft Eastern Meadowlark Recovery Plan (Tolan and Hill 2023), invasive plants must be mapped in breeding habitat, which will hopefully facilitate their control and/or removal. Yellow rattle (*Rhinanthus minor*) has begun to invade portions of Missisquoi National Wildlife Refuge's fields, where at least two pairs were breeding in 2022. Another site with invasive plants, Morse State Airport, had a large population of Eastern Meadowlark in 2021 but has become inundated with wild parsnip (*Pastinaca sativa*) in 2022 (K.L. pers. comm. 2022). The bird friendly management that's currently practiced at occupied Eastern Meadowlark sites has allowed for invasive and noxious plants to invade some fields, subsequently degrading habitat quality (Igl and Johnson 2016). Starting in 2023 observers will be instructed on which "problem" plants to document, and a method of reporting will be instituted.

Acknowledgements

This project would not have been possible without contributions from numerous community scientists who spent their mornings surveying hayfields throughout Vermont. Landowner participation and property access was integral to thoroughly documenting numerous Eastern Meadowlark sites. The coordination of this project was funded in part by the Vermont Fish and Wildlife Department.

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Figures and Tables

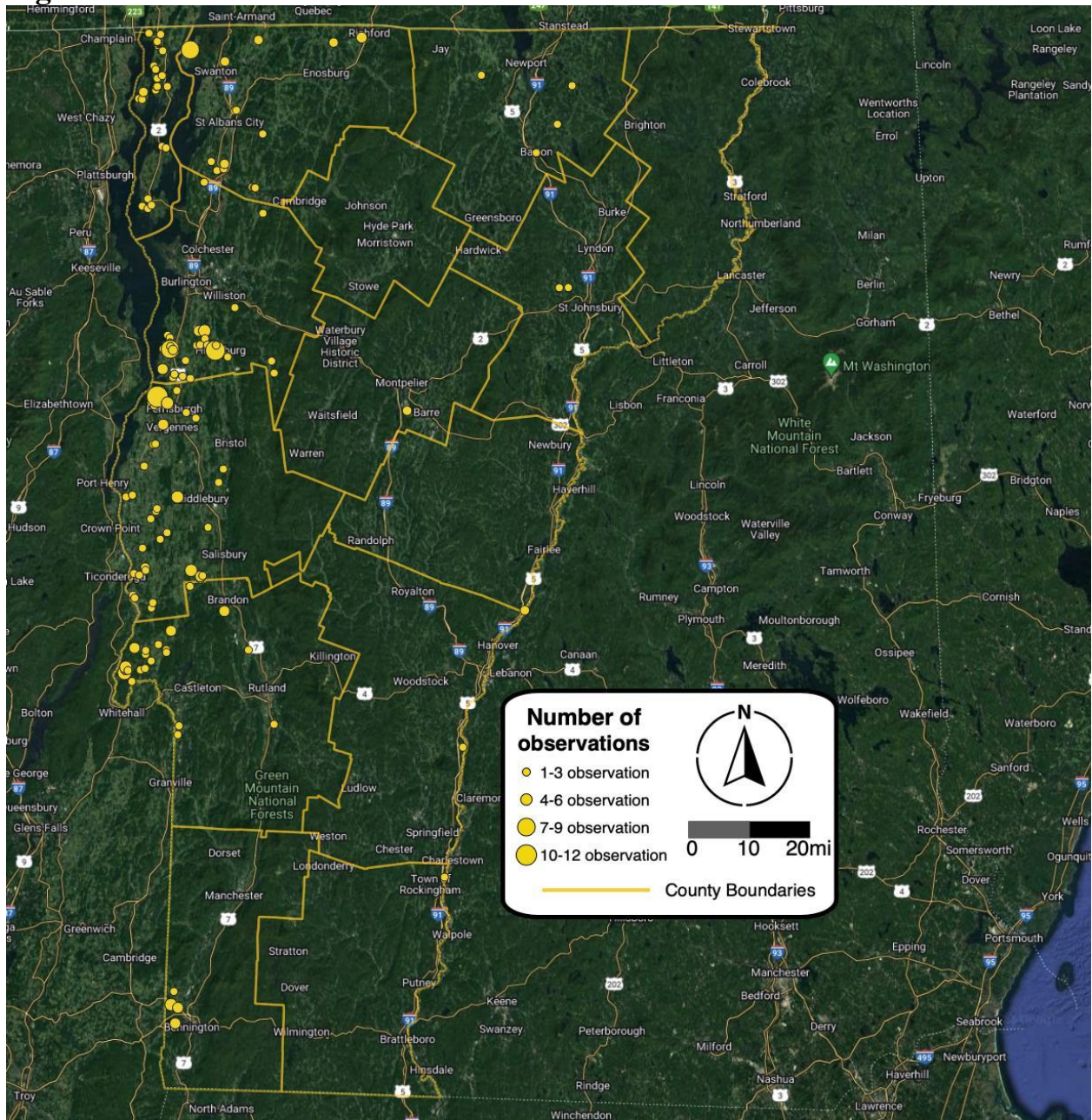


Figure 1. Locations of Eastern Meadowlark observations reported between March 2022 and August 2022.



Figure 2. Locations of suspected 2022 Eastern Meadowlark sites in Vermont.

Table 1. Total survey effort time and number of submitted surveys. Reported sites had Eastern Meadowlark present for at least two consecutive months between May and July, or evidence of successful breeding. Occupied sites were assumed to host a breeding pair when only one individual was observed singing.

County	Total survey time (minutes)	# of submitted observations	Reported # of sites	Estimated # of breeding adults
Addison	1,286	72	7	16
Bennington	565	14	3	6
Caledonia	221	3	1	2
Chittenden	1,838	53	9	26
Franklin	1,748	39	6	18
Grand Isle	1,338	24	3	8
Lamoille	0	0	0	0
Orange	130	2	0	0
Orleans	155	5	1	2
Rutland	1,943	50	7	18
Washington	13	3	0	0
Windham	149	1	0	0
Windsor	41	1	0	0
Sum	9,427	267	37	69

Table 2. Observations submitted to the 2022 Eastern Meadowlark Monitoring Project. A Count of “X” indicates presence. Breeding codes: H = In Appropriate Habitat, S = Singing Bird, P = Pair in Suitable Habitat, S7 = Singing Bird Present 7+ Days, CF = Carrying Food, CN = Carrying Nesting Material, PE = Physiological Evidence.

Date	County	Count	Latitude	Longitude	Start Time	Breeding Code	Observer(s)
17-Mar-22	Addison	2	44.09	-73.34	13:38		Allan Strong
17-Mar-22	Chittenden	1	44.32	-73.09	16:50		Paul Wiczoreck
18-Mar-22	Grand Isle	1	44.76	-73.28	13:00		Beth Deimling
19-Mar-22	Addison	1	44.13	-73.30	16:16		Chip Darmstadt
19-Mar-22	Rutland	5	43.70	-73.29	12:40		Chelsea Carroll
20-Mar-22	Rutland	3	43.64	-73.40	16:48	S	Chelsea Carroll
23-Mar-22	Rutland	2	43.70	-73.37	15:45	S	Chelsea Carroll
26-Mar-22	Addison	1	43.96	-73.15	6:43		Allan Strong, Jon D. Erickson
26-Mar-22	Addison	1	44.02	-73.37	11:49	S	Allan Strong, Jon D. Erickson
30-Mar-22	Addison	1	44.19	-73.18	8:40	S	Jon D. Erickson
1-Apr-22	Chittenden	1	44.29	-73.28	12:00	S	Paul Wiczoreck
2-Apr-22	Addison	1	43.86	-73.20	9:49		David Guertin
7-Apr-22	Bennington	1	42.89	-73.24	7:06		Eric Seyferth
8-Apr-22	Chittenden	1	44.33	-73.13	16:10		Alison Wagner
8-Apr-22	Grand Isle	2	44.76	-73.27	14:41		Beth Deimling
9-Apr-22	Addison	2	44.22	-73.31	10:34		James Osborn
10-Apr-22	Addison	1	44.23	-73.30	8:55		James Osborn
10-Apr-22	Rutland	3	43.64	-73.40	10:58	S	Chelsea Carroll
11-Apr-22	Addison	1	44.20	-73.21	16:02	S	Jon D. Erickson
11-Apr-22	Franklin	1	44.96	-73.20	8:40		Kevin Tolan

11-Apr-22	Franklin	2	44.96	-73.20	9:30	S	Kevin Tolan
11-Apr-22	Grand Isle	1	44.98	-73.30	7:48	S	Kevin Tolan
11-Apr-22	Grand Isle	1	45.00	-73.29	8:06	S	Kevin Tolan
11-Apr-22	Grand Isle	1	44.96	-73.28	7:22	S	Kevin Tolan
11-Apr-22	Grand Isle	1	45.00	-73.32	8:19	S	Kevin Tolan
12-Apr-22	Franklin	2	44.96	-73.20	11:44	S	James Osborn, Brent Stephenson
12-Apr-22	Franklin	2	44.97	-73.21	18:53		Craig Provost
12-Apr-22	Franklin	4	44.96	-73.20	9:47	S	James Osborn, Brent Stephenson
12-Apr-22	Franklin	6	44.96	-73.16	7:26		James Osborn
12-Apr-22	Orange	1	43.78	-72.21	10:35		Kyle Jones, Tii McLane
15-Apr-22	Addison	1	44.22	-73.27	8:05		James Osborn, John Peckham
15-Apr-22	Chittenden	1	44.33	-73.13	8:28		Kevin Tolan
15-Apr-22	Chittenden	1	44.33	-73.13	8:32		Maeve Kim
15-Apr-22	Chittenden	1	44.33	-73.13	11:45	P	Alison Wagner
15-Apr-22	Chittenden	4	44.28	-73.22	7:37	S	Kevin Tolan
15-Apr-22	Rutland	3	43.64	-73.40	16:19	S	Chelsea Carroll
16-Apr-22	Chittenden	1	44.33	-73.13	11:30		Alison Wagner
16-Apr-22	Chittenden	1	44.33	-73.13	19:11		Craig Provost
16-Apr-22	Franklin	2	44.96	-73.20	12:48		Craig Provost
16-Apr-22	Grand Isle	2	44.88	-73.34	11:20		James Osborn
17-Apr-22	Addison	1	43.78	-73.32	10:02		Craig Provost
17-Apr-22	Washington	1	44.20	-72.56	8:00		Dan Linder
18-Apr-22	Addison	1	44.08	-73.10	7:52	S	Kevin Tolan
18-Apr-22	Addison	2	43.86	-73.20	9:28	S	Kevin Tolan
18-Apr-22	Rutland	3	43.53	-73.23	7:26	P	Joel Tilley
19-Apr-22	Addison	1	44.22	-73.27	15:30		James Osborn
19-Apr-22	Addison	2	44.23	-73.30	15:35		James Osborn
19-Apr-22	Windsor	1	43.48	-72.39	11:47		Kyle Jones, Tii McLane
21-Apr-22	Rutland	1	43.53	-72.95	7:50	S	Kevin Tolan
22-Apr-22	Rutland	2	43.64	-73.40	11:37	S7	Chelsea Carroll
22-Apr-22	Washington	1	44.20	-72.56	12:56	S	Kevin Tolan
22-Apr-22	Windham	2	43.20	-72.45	5:31	P	Coleen Lawlor
23-Apr-22	Addison	1	43.80	-73.36	13:00		Sue Wetmore
23-Apr-22	Chittenden	2	44.33	-73.26	8:23	S	Sharon Glezen
23-Apr-22	Orleans	1	44.89	-72.07	14:40		Bob Stymeist, Martha Steele
24-Apr-22	Addison	1	44.22	-73.27	6:40		James Osborn
24-Apr-22	Bennington	3	42.92	-73.24	7:38		Eric Seyferth
24-Apr-22	Chittenden	0	44.69	-73.16	8:05		Julie Filiberti, David Filiberti
24-Apr-22	Chittenden	2	44.33	-73.26	8:25	S	Sharon Glezen
24-Apr-22	Chittenden	2	44.37	-73.18	6:43		Alison Wagner
24-Apr-22	Chittenden	2	44.37	-73.18	6:58		Jacob Crawford
24-Apr-22	Chittenden	3	44.33	-73.13	8:46		Jacob Crawford
24-Apr-22	Franklin	0	44.68	-73.02	7:00		Julie Filiberti, David Filiberti
24-Apr-22	Franklin	0	44.71	-73.12	8:40		Julie Filiberti, David Filiberti
24-Apr-22	Franklin	3	44.72	-73.10	9:05		Julie Filiberti, David Filiberti
24-Apr-22	Franklin	4	44.67	-73.01	7:27		Julie Filiberti, David Filiberti
24-Apr-22	Grand Isle	1	44.88	-73.30	16:33		Craig Provost
24-Apr-22	Rutland	2	43.70	-73.37	12:07	S	Chelsea Carroll
24-Apr-22	Rutland	2	43.66	-73.39	13:51	S	Chelsea Carroll
25-Apr-22	Franklin	1	44.98	-72.78	18:49		Pamela Ploof
26-Apr-22	Orleans	2	44.81	-72.11	9:55		Bob Stymeist, Martha Steele
27-Apr-22	Bennington	1	42.89	-73.24	6:49		Eric Seyferth
27-Apr-22	Chittenden	1	44.33	-73.28	8:40		James Osborn

27-Apr-22	Chittenden	1	44.36	-73.27	8:20		James Osborn
27-Apr-22	Grand Isle	1	44.93	-73.31	7:02	S	Kevin Tolan
27-Apr-22	Grand Isle	1	44.92	-73.30	6:47	S	Kevin Tolan
27-Apr-22	Grand Isle	1	44.89	-73.27	9:22	S	Kevin Tolan
27-Apr-22	Grand Isle	2	44.86	-73.35	8:18	CN	Kevin Tolan
27-Apr-22	Grand Isle	3	44.86	-73.34	7:57	P	Kevin Tolan
29-Apr-22	Bennington	1	42.93	-73.26	7:13		Terri Armata
29-Apr-22	Bennington	1	42.89	-73.24	6:44		Eric Seyferth
30-Apr-22	Addison	2	44.23	-73.30	5:45	P	Mike Winslow
30-Apr-22	Addison	2	44.23	-73.30	10:50		James Osborn
30-Apr-22	Chittenden	1	44.29	-73.28	8:30		Paul Wiczoreck
30-Apr-22	Chittenden	2	44.33	-73.26	8:15	S	Sharon Glezen
30-Apr-22	Rutland	1	43.69	-73.03	8:00		Sue Wetmore
1-May-22	Caledonia	0	44.46	-72.08	6:50		Jeff MacQueen
1-May-22	Chittenden	1	44.33	-73.13	8:20		Liz Lee
1-May-22	Orange	1	43.78	-72.21	11:09		Chris Rimmer
2-May-22	Caledonia	1	44.46	-72.11	7:53	S	Kevin Tolan
2-May-22	Franklin	1	44.99	-73.00	11:31		Julie Filiberti, Liz Lee
2-May-22	Franklin	1	44.79	-72.99	11:23		Chip Darmstadt
2-May-22	Franklin	1	44.94	-73.10	14:08		Julie Filiberti, Liz Lee
2-May-22	Franklin	1	44.95	-73.21	5:15		James Osborn
2-May-22	Franklin	2	44.96	-73.20	7:35		James Osborn
2-May-22	Franklin	4	44.96	-73.16	4:54		James Osborn
2-May-22	Franklin	4	44.96	-73.20	7:12		James Osborn
3-May-22	Chittenden	1	44.34	-73.12	15:01	S	Jon D. Erickson
4-May-22	Franklin	1	44.84	-73.06	19:26		Matthew Bode
4-May-22	Grand Isle	2	44.88	-73.34	8:14		James Osborn
5-May-22	Bennington	1	42.89	-73.24	6:39		Eric Seyferth
5-May-22	Chittenden	0	44.28	-72.95	8:20		Linda Gionti
5-May-22	Chittenden	0	44.31	-72.96	7:59		Linda Gionti
5-May-22	Chittenden	1	44.36	-73.16	10:45		Linda Gionti
7-May-22	Addison	1	43.79	-73.31	8:34	CN	David Guertin
7-May-22	Addison	1	43.80	-73.36	11:20		Sue Wetmore
7-May-22	Addison	1	43.84	-73.17	7:58	S	Sue Wetmore
7-May-22	Franklin	1	44.94	-73.10	19:41		Jon D. Erickson
7-May-22	Franklin	2	44.99	-72.69	7:35		Todd Marlow
7-May-22	Franklin	4	44.98	-73.00	16:27		Jon D. Erickson
7-May-22	Grand Isle	1	44.64	-73.34	10:05		James Strong
7-May-22	Rutland	1	43.66	-73.39	8:02	S	Chelsea Carroll
7-May-22	Rutland	2	43.68	-73.33	9:07	P	Chelsea Carroll
7-May-22	Rutland	5	43.64	-73.40	8:34	P	Chelsea Carroll
8-May-22	Addison	1	44.02	-73.39	6:23		David Guertin
8-May-22	Bennington	3	42.96	-73.25			Joanne Case
8-May-22	Caledonia	1	44.46	-72.08	6:40	H	Jeff MacQueen
8-May-22	Chittenden	0	44.69	-73.16	8:08		Julie Filiberti, David Filiberti
8-May-22	Chittenden	2	44.37	-73.18	7:12		Jacob Crawford
8-May-22	Chittenden	3	44.37	-73.16	18:05		Craig Provost
8-May-22	Franklin	0	44.71	-73.12	8:44		Julie Filiberti, David Filiberti
8-May-22	Franklin	1	44.68	-73.02	6:55		Julie Filiberti, David Filiberti
8-May-22	Franklin	1	44.67	-73.01	7:27		Julie Filiberti, David Filiberti
8-May-22	Franklin	3	44.72	-73.10	9:11		Julie Filiberti, David Filiberti
8-May-22	Rutland	1	43.70	-73.37	9:02	H	Chelsea Carroll
8-May-22	Rutland	1	43.68	-73.33	11:12	H	Chelsea Carroll

8-May-22	Rutland	2	43.63	-73.37	10:38	H	Chelsea Carroll
10-May-22	Addison	1	43.85	-73.16	7:25		David Guertin
10-May-22	Chittenden	1	44.33	-73.13	18:44		Craig Provost
10-May-22	Franklin	1	44.84	-73.07	19:57		Matthew Bode
10-May-22	Orleans	3	44.91	-72.34	7:21	S	Kevin Tolan
11-May-22	Franklin	2	44.71	-73.10	8:52		Nathaniel Sharp
11-May-22	Rutland	1	43.69	-73.03	9:08	S	Susan Elliot, Marv Elliot
12-May-22	Addison	2	43.86	-73.33	8:00		Amy Douglas
12-May-22	Chittenden	1	44.27	-73.20	10:16		Nathaniel Sharp
13-May-22	Rutland	1	43.65	-73.35	8:15	H	Susan Elliot, Marv Elliot
13-May-22	Rutland	3	43.65	-73.39	9:14	S	Susan Elliot, Marv Elliot
14-May-22	Rutland	1	43.63	-73.37	12:31	S	Susan Elliot, Marv Elliot, Sue Wetmore
14-May-22	Rutland	2	43.65	-73.38	12:53	S	Susan Elliot, Marv Elliot, Sue Wetmore
15-May-22	Addison	1	44.23	-73.30	5:45	S	Mike Winslow
15-May-22	Addison	2	43.86	-73.20	7:15		Candice Huber
15-May-22	Addison	3	44.17	-73.28	7:16	P	Mike Winslow
15-May-22	Grand Isle	1	44.90	-73.30	13:40		Carol Yarnell
15-May-22	Grand Isle	2	44.64	-73.32	6:30		Alison Wagner
15-May-22	Grand Isle	2	44.63	-73.33	19:16		Craig Provost
15-May-22	Washington	1	44.20	-72.56	10:13		Sean Beckett
16-May-22	Grand Isle	1	44.91	-73.28	9:45		Alison Wagner, Scott Sainsbury
18-May-22	Franklin	2	44.94	-73.10	4:58		Nathaniel Sharp
21-May-22	Rutland	1	43.70	-73.37	15:21	S7	Chelsea Carroll
22-May-22	Grand Isle	1	44.89	-73.30	8:53		Carol Yarnell
22-May-22	Rutland	2	43.66	-73.39	16:26	H	Chelsea Carroll
24-May-22	Chittenden	1	44.33	-73.13	15:19		Jacob Crawford
24-May-22	Franklin	2	44.96	-73.20	8:55	P	James Osborn
25-May-22	Addison	1	44.02	-73.24	5:51		David Guertin
25-May-22	Addison	1	43.99	-73.30	16:00		Mark LaBarr
25-May-22	Bennington	2	42.92	-73.24	6:32	P	Kevin Tolan
25-May-22	Bennington	2	42.93	-73.25	8:14	P	Kevin Tolan
25-May-22	Grand Isle	6	44.88	-73.34	4:02		James Osborn
27-May-22	Addison	3	44.02	-73.24	8:05		Ian Worley
27-May-22	Bennington	1	42.93	-73.26	7:00		Terri Armata
28-May-22	Rutland	1	43.83	-73.20	6:57		Sue Wetmore
29-May-22	Addison	1	44.02	-73.24	16:53		Ian Worley
29-May-22	Chittenden	0	44.33	-73.26	7:40		Sharon Glezen
29-May-22	Chittenden	1	44.33	-73.26	8:04		Sharon Glezen
30-May-22	Addison	1	43.85	-73.35	10:30	S	Amy Douglas
30-May-22	Addison	1	43.91	-73.34	10:30	H	Amy Douglas
30-May-22	Addison	1	43.86	-73.37	10:30	S	Amy Douglas
30-May-22	Addison	1	43.86	-73.33	10:30	S	Amy Douglas
30-May-22	Addison	1	43.87	-73.33	10:30	H	Amy Douglas
30-May-22	Addison	2	43.87	-73.33	10:30	H	Amy Douglas
30-May-22	Grand Isle	1	44.89	-73.30	9:25		Alison Wagner, Scott Sainsbury
30-May-22	Rutland	2	43.73	-73.26	9:09	S	Chelsea Carroll
31-May-22	Bennington	2	42.93	-73.25	8:00	CF	Kevin Tolan
31-May-22	Orleans	1	44.75	-72.18	9:13		Bob Stymeist, Martha Steele
31-May-22	Rutland	1	43.65	-73.35	8:11	S7	Susan Elliot, Marv Elliot
31-May-22	Rutland	1	43.78	-73.10	6:20		Sue Wetmore
31-May-22	Rutland	4	43.65	-73.39	9:05	CF	Susan Elliot, Marv Elliot
1-Jun-22	Chittenden	1	44.31	-73.21			Paul Wiczoreck
1-Jun-22	Rutland	2	43.73	-73.26	13:45	H	Chelsea Carroll

2-Jun-22	Addison	1	43.86	-73.20	7:30	H	Candice Huber
2-Jun-22	Addison	2	43.85	-73.17		P	Candice Huber
2-Jun-22	Addison	4	43.85	-73.17	7:00	H	Candice Huber
2-Jun-22	Orange	0	43.78	-72.21	6:35		Rebecca Lovejoy
3-Jun-22	Addison	1	44.02	-73.24	12:54		Ian Worley
4-Jun-22	Bennington	2	42.92	-73.24	7:06	CN	Eric Seyferth
4-Jun-22	Chittenden	1	44.35	-73.26	6:06		Joshua Phillips
4-Jun-22	Chittenden	1	44.35	-73.26	6:31		Joshua Phillips
4-Jun-22	Chittenden	1	44.34	-73.26	6:51		Joshua Phillips
4-Jun-22	Chittenden	1	44.33	-73.26	7:11		Joshua Phillips
4-Jun-22	Chittenden	2	44.36	-73.26	5:42		Joshua Phillips
4-Jun-22	Chittenden	2	44.34	-73.15	18:16		Craig Provost
4-Jun-22	Grand Isle	3	44.65	-73.33	11:00		Craig Provost
5-Jun-22	Addison	1	44.21	-73.31	12:22		Craig Provost
5-Jun-22	Addison	1	44.22	-73.31	9:55		James Osborn
5-Jun-22	Caledonia	0	44.46	-72.08	6:10		Jeff MacQueen
6-Jun-22	Chittenden	1	44.62	-72.99	8:26		Allan Strong
6-Jun-22	Franklin	5	44.96	-73.20	4:57	PE	Kevin Tolan, Jason Hill
8-Jun-22	Addison	1	44.23	-73.30	14:51	S	Rebecca Giroux
8-Jun-22	Chittenden	1	44.33	-73.25	9:48		Sharon Glezen
10-Jun-22	Bennington	1	42.93	-73.26	7:05		Terri Armata
10-Jun-22	Chittenden	2	44.29	-73.28	10:17	P	Kevin Tolan
11-Jun-22	Addison	2	44.23	-73.30	6:43	CF	Mike Winslow
11-Jun-22	Addison	2	44.17	-73.28	5:33		Mike Winslow
11-Jun-22	Grand Isle	1	44.88	-73.30	16:58		Craig Provost
11-Jun-22	Rutland	2	43.66	-73.39	14:30	S	Chelsea Carroll
12-Jun-22	Chittenden	1	44.33	-73.25	8:50		Sharon Glezen, Cara Calvelli
12-Jun-22	Franklin	1	44.73	-73.14	15:42		Craig Provost
12-Jun-22	Rutland	1	43.51	-73.24	7:30		Kathleen Guinness
14-Jun-22	Addison	1	44.02	-73.24	4:59		Ian Worley
14-Jun-22	Franklin	1	44.99	-72.69	8:00	S7	Charlotte Bill
14-Jun-22	Franklin	1	44.99	-72.69	8:42		Charlotte Bill
15-Jun-22	Addison	1	44.17	-73.28	16:36	S	Allan Strong, Grace Yaros
15-Jun-22	Chittenden	1	44.29	-73.28	18:36	H	Kevin Tolan
15-Jun-22	Rutland	1	43.73	-73.26	12:10	H	Chelsea Carroll
16-Jun-22	Addison	1	44.13	-73.31	6:40		Mike Winslow
16-Jun-22	Chittenden	2	44.27	-73.25	7:03	PE	Jason Hill, Kevin Tolan
16-Jun-22	Franklin	4	44.96	-73.20	16:16	P	Jason Hill, Kevin Tolan
17-Jun-22	Addison	1	43.81	-73.37	18:32		Mike Winslow
17-Jun-22	Addison	1	43.93	-73.29	18:10		Mike Winslow
17-Jun-22	Addison	2	43.87	-73.33	19:20	P	Mike Winslow
17-Jun-22	Chittenden	1	44.34	-73.17	11:45		Paul Wiczoreck
17-Jun-22	Rutland	3	43.67	-73.32	6:00	CF	Allan Strong
18-Jun-22	Rutland	1	43.69	-73.27	10:15		Kathleen Guinness
18-Jun-22	Rutland	2	43.69	-73.27	10:56	S7	Kathleen Guinness, Joel Tilley
19-Jun-22	Rutland	1	43.73	-73.26	14:43	H	Chelsea Carroll
20-Jun-22	Chittenden	2	44.34	-73.17	11:30		Paul Wiczoreck
21-Jun-22	Chittenden	0	44.33	-73.25	8:10		Sharon Glezen
21-Jun-22	Chittenden	0	44.33	-73.26	7:45		Sharon Glezen
21-Jun-22	Chittenden	0	44.33	-73.26	7:45		Sharon Glezen
21-Jun-22	Rutland	1	43.78	-73.10	8:20		Sue Wetmore
21-Jun-22	Rutland	3	43.65	-73.35	8:46	FL	Susan Elliot, Marv Elliot
21-Jun-22	Rutland	7	43.65	-73.39	9:56	FL	Susan Elliot, Marv Elliot

22-Jun-22	Addison	2	43.97	-73.32	13:00		Mike Winslow
23-Jun-22	Chittenden	3	44.37	-73.17	11:15		Paul Wiczoreck
25-Jun-22	Addison	1	44.02	-73.24	9:56		Ian Worley
25-Jun-22	Chittenden	1	44.34	-73.18	16:52		Craig Provost
25-Jun-22	Chittenden	1	44.37	-73.16	12:25		Craig Provost
25-Jun-22	Rutland	2	43.64	-73.40	17:36	H	Chelsea Carroll
25-Jun-22	Rutland	3	43.66	-73.39	16:35	S	Chelsea Carroll
26-Jun-22	Addison	1	44.23	-73.30	7:01		Mike Winslow
26-Jun-22	Addison	5	44.17	-73.28	5:54	FL	Mike Winslow
26-Jun-22	Caledonia	0	44.46	-72.08	6:05		Jeff MacQueen
26-Jun-22	Chittenden	1	44.37	-73.16	18:48		Craig Provost
26-Jun-22	Franklin	1	44.72	-73.10	7:15		Julie Filiberti
26-Jun-22	Franklin	1	44.99	-72.69	8:38	S	Charlotte Bill
26-Jun-22	Franklin	1	44.67	-73.01	6:35		Julie Filiberti
26-Jun-22	Orleans	2	44.91	-72.34	10:11	S	Charlotte Bill
27-Jun-22	Chittenden	1	44.38	-73.16	20:04		Craig Provost
27-Jun-22	Franklin	1	44.98	-72.78	20:55		Pamela Ploof
28-Jun-22	Addison	1	44.05	-73.12	7:48		Mike Winslow
29-Jun-22	Chittenden	2	44.37	-73.16	18:47		Craig Provost
29-Jun-22	Rutland	2	43.78	-73.10	8:00		Mark LaBarr
30-Jun-22	Addison	0	43.86	-73.20	7:30		Candice Huber
30-Jun-22	Addison	0	43.85	-73.17			Candice Huber
30-Jun-22	Addison	2	43.85	-73.17	8:00	S	Candice Huber
1-Jul-22	Rutland	1	43.65	-73.33	9:24		Chip Darmstadt
1-Jul-22	Rutland	2	43.65	-73.35	8:15	S	Susan Elliot, Sue Wetmore
1-Jul-22	Rutland	3	43.65	-73.39	9:07	S7	Susan Elliot, Sue Wetmore
3-Jul-22	Addison	1	44.02	-73.24	6:37		Ian Worley
3-Jul-22	Rutland	1	43.69	-73.33	15:40		Craig Provost
4-Jul-22	Chittenden	2	44.36	-73.26	5:39		Joshua Phillips
4-Jul-22	Chittenden	2	44.34	-73.26	6:37		Joshua Phillips
4-Jul-22	Chittenden	3	44.33	-73.26	6:56		Joshua Phillips
4-Jul-22	Rutland	3	43.65	-73.39	15:40		Craig Provost
7-Jul-22	Rutland	3	43.65	-73.35	9:19		Susan Elliot, Marv Elliot
8-Jul-22	Orange	0	43.78	-72.21	7:13		Rebecca Lovejoy
9-Jul-22	Bennington	6	42.92	-73.24	7:19		Eric Seyferth
10-Jul-22	Addison	1	44.22	-73.27	6:59		James Osborn
14-Jul-22	Caledonia	1	44.46	-72.08	8:52		Bernard Foy
14-Jul-22	Rutland	2	43.78	-73.10	8:00		Sue Wetmore
16-Jul-22	Addison	1	44.02	-73.24	6:48		Ian Worley
17-Jul-22	Addison	X	44.25	-73.24		S	Dianne Imrie
17-Jul-22	Chittenden	2	44.28	-73.25	6:33		James Osborn
20-Jul-22	Addison	1	43.99	-73.30	13:13		Ian Worley
20-Jul-22	Franklin	2	44.99	-73.00	8:56		Chip Darmstadt
22-Jul-22	Addison	2	43.94	-73.27	14:43	P	Spencer Hardy
22-Jul-22	Chittenden	1	44.42	-73.07	6:49		Nathaniel Sharp
22-Jul-22	Franklin	1	44.98	-72.78	5:55		Pamela Ploof
24-Jul-22	Addison	1	44.23	-73.30	13:50	P	James Osborn
27-Jul-22	Addison	1	43.86	-73.37	17:30		Amy Douglas
27-Jul-22	Addison	1	44.22	-73.27	10:27		James Osborn
29-Jul-22	Addison	1	44.23	-73.30	15:27		James Osborn
31-Jul-22	Addison	1	44.23	-73.30	14:00	P	James Osborn
16-Aug-22	Addison	1	44.23	-73.30	9:03	CF	James Osborn
21-Aug-22	Addison	1	44.22	-73.31	13:57	P	Nathaniel Sharp