

*A Survey of Bobolinks
in East Leverett Meadow
June 2011*

Molly Hale

BACKGROUND

East Leverett Meadow (ELM) is a 30-acre grass and forb meadow owned by the Rattlesnake Gutter Trust and located in Leverett, Massachusetts. Bobolinks (*Dolichonyx oryzivorus*) currently nest in ELM but this species has declined regionally since the early 1990's due in part to the loss of nesting habitat and early mowing for hay. For these reasons the Trust is trying to encourage successful bobolink nesting at this site by studying bobolink use of ELM and using appropriate management. In the spring of 2010 ELM was plowed and re-seeded in order to re-establish a vegetation community more favorable to bobolinks.

Annual surveys to assess bobolink activity in ELM have been conducted from 2000 to 2011. Aaron Eilers conducted the 2000-2002 surveys and I conducted the surveys from 2003 to the present. The specific stated goals of these surveys were 1.) to identify the preferred habitat locations of bobolinks within ELM; 2.) to estimate the approximate number of bobolinks using ELM; and 3.) to compare data between years to determine whether the population is changing.

The ultimate purpose of the surveys is to plan a management regime that will have the greatest benefit to nesting bobolinks in ELM. Specifically the Trust is interested in knowing in which section of the meadow bobolink nests are located; how early ELM can be mowed or hayed without causing bobolink mortality, and whether the bobolink numbers each year are related to the mowing regime.

2011 METHODS

The survey took place on June 10. I used the same survey method as last year, except that the location and order of some of the observation points were changed. This year I again worked without an assistant. Observation times at each point were not uniform and ranged between 6 and 35 minutes per point, depending on how much bobolink activity was going on.

A new additional component added this year was that I followed up the stationary surveys at the 8 points by walking on the mowed path around the perimeter of the whole meadow. My goal in doing this was to try to determine whether bobolinks seen during the point counts in all parts of the meadow were the same ones using different areas at different times, or whether there are different bobolinks simultaneously using different parts of the meadow.

The point surveys took place from 6:25 to 9:21 a.m. The temperature was about 65° F at the beginning and about 76° F at the end. The weather started out slightly foggy but eventually burned through to sun and there was no wind. The spring has been cool and very wet, with more than 10" of rain so far this spring, including 0.5" yesterday.

I used binoculars to help spot birds. Observations were made from eight points around the meadow. At each point two observation techniques were used. First I scanned with binoculars from one side of the meadow to the other, and could see bobolinks perched on the

grass or flying. By scanning I could determine a minimum total number of male bobolinks because they would be visible simultaneously or in distinct parts of the meadow. The second observation technique was to observe where individual bobolinks were perched and map their locations by using compass bearings and estimating distances. I also mapped as many of the movements of individuals as possible.

I made no assumption that birds at one point were different individuals than those at another point. Instead from each point I made a separate count that I could compare against the others like snapshots from different angles and points in time.

RESULTS

Interpretation of maps

To aid in describing the different sections of the meadow, I divided a map of ELM into 6 sections: northwest, southwest, north-central, mid-central, south-central, and east (see map). Separate maps of the observations from each point are also included in this report. The maps show where bobolinks were observed perched. **Odd numbers indicate males and even numbers indicate females. Each different number represents different bobolinks and does not indicate number of bobolinks.** Numbers not connected by a line indicate either separate individuals or possibly an already observed individual that got counted more than once. Movements of a bobolink that I knew was a single individual are connected a straight line from the origin to the destination. The straight lines are not necessarily the actual flight path although this year most of the flight was directly from one point to another.

The observations from each point are shown in the table below and described in the following notes.

Bobolinks observed from each point on June 10, 2011

	# males	# females
Point 1	4-6	1
Point 2	3	0
Point 3	2	0
Point 4	3	0
Point 5	3-5	0
Point 6	1	2
Point 7	3-4	0
Point 8	2	2-3

Point 1: Hickory tree at south edge of meadow

16 minute observation

2 males originating in the SW quadrant, were flying overhead in big loops. One of them dropped a fecal sac. A male and female were seen in the goldenrod south of the S-Central quadrant.

Point 2: Southwest corner of meadow

6 minute observation

One male was seen crossing between the NW and the SW quadrant. Two more males were perched near the kestrel box in the Mid-Central quadrant. No females were seen.

Point 3: Middle of west edge of meadow

14 minute observation

Two males originating in the goldenrod S of the S-Central quadrant took off in a long flight, 2 laps around the meadow. One eventually landed in the SW quadrant and the other landed in the brush S of the SW quadrant. No females were seen.

Point 4: Between hickory tree and electric tower north of meadow

10 minute observation

Two males were continually perched together in the NW quadrant. They both had food in their mouths. One was stationary and the other moved a short distance into the Mid-Central quadrant, but both held onto the food as long as I was at this point. Another male showed the same behavior in the S-Central quadrant. No females were seen.

Point 5: Electric tower at north side of meadow

21 minute observation

A male was perched in the SW quadrant and another male was perched in the NW quadrant. A different male flew from the N-Central quadrant to the SE corner of the meadow. Two males were seen along the S edge of the S-Central quadrant, but I couldn't tell if they were the same as the first two observed from this point. No females were seen.

Point 6: Hickory tree at east side of mid-central quadrant

16 minute observation

A male and a female were perched together in a goldenrod patch in the part of the N-Central quadrant closest to this point. The female was stationary, but the male moved a short distance within the quadrant then returned, then soon flew to the SE corner of the meadow. A different female flew from the SW quadrant into the N-Central quadrant, then returned to the SW quadrant.

Point 7: SE corner of meadow

20 minute observation

This is a new observation point this year. I used it because this year I have observed activity in the E quadrant for the first time. From this point, I saw one male fly from here to the SW quadrant carrying food. Another male flushed up just north of the trail, agitated. Two males also appeared at a slightly different location in this quadrant, and neither was the same as the one near the trail, but I couldn't be sure that one wasn't the same as the one that flew into the SW quadrant.

Point 8: Bench at trail junction on S side of meadow

35 minute observation

A male flew from the S-Central quadrant to the SE corner. A different male flew from the Mid-Central quadrant to the N-Central quadrant. A female flew into the S-Central quadrant with food. Two females were perched in a clump of taller grass (Sudan grass?) but one of them could have been the same as the first female.

Walk around perimeter of meadow, 8:56-9:21

(35 minute observation)

Starting at the entrance bench and walking clockwise, I flushed a male and a female in the SW quadrant. The male showed he was agitated by perching in several places in a circle around me, calling constantly. The female flew away into the area SW of the SW corner of the trail. One male was in the SW corner, but could have been the same male as the first one just described. A female carrying food flew into the goldenrod S of the S-Central quadrant. I did not see where she originated.

Other observations: Unlike last year no interactions, aggressive or otherwise, were seen between a tree swallow and a bobolink. There were many tree swallows flying continuously over the field though.

There seemed to be more red winged blackbirds than in previous years, including in the NW, SW, Mid-Central, S-Central and East quadrants. I would say they were using the SW quadrant more than in previous years. They were seen chasing a kestrel two times and chasing each other several times. The kestrel was seen once perching on the kestrel box while tearing up and eating some item of prey.

Comparison of bobolink numbers and distribution in East Leverett Meadow 2000-2010

	Northwest	Southwest	North-Central	Mid-Central	South-Central	East	Est. # bobolinks
2011, June 10	Yes	Yes	Yes	Yes	Yes	Yes	4 - 6 M 2 F
2010, June 15	Yes	Yes	Yes, south half	Yes	Yes, briefly	No	3 - 7 M 5 F
2009, June 20	No	Yes	No	No	No	No	1 M 2 F
2008, JULY 11	Briefly, S section	Yes	No	No	No	No	1 M 2 F 4 fledglings
2007, June 10	Only S edge	Yes-heavily used	No	Slightly	No*	No	5 M 3 F
2006, June 11	Yes	Yes	Slightly, along S edge	Yes	Slightly, along N edge	No	2 - 3 M 1 F
2005, June 12	Yes	Yes	Slightly	Yes	Once, at edge of Kusmeski CR	No	2 - 4 M 2 F
2004, June 14	Yes	Yes	No	Yes	Yes	No	4 - 7 M 2 F
2003, June 24	Yes	Yes	No	Yes	Slightly, along N edge	No	5- 8 M 2 F
2002 (Eilers)	Data not clear about locations or numbers						
2001 (Eilers)	Yes	Yes	Slightly	Yes	Yes	Slightly	
2000 (Eilers)	Most activity in western half of meadow						

* Mary Alice Wilson saw bobolink activity here on July 7

DISCUSSION

Estimated number of bobolinks:

At least 4 different males and possibly up to 6, were counted. Only 2 to 3 females were observed in any one observation. In most observations, each bobolink did not remain visible for long, but instead appeared for a short time, then ducked down again or flew off. This made it difficult to tell if some individuals were the same as others. The minimum numbers I got were based on bobolinks that were observed simultaneously, and could therefore be confirmed as separate individuals.

Timing of nesting:

I observed many instances of bobolinks carrying food in flight or holding food while perched. This seemed to be the main activity. I only observed preening once, at the first point. Thus I conclude that most of the bobolinks are at the stage of feeding young at the nest. I did not see any fledglings. According to *The Birding Handbook*, young fledged 10-14 days from hatching, so if all the nests are at the same stage, with nestlings, the latest date of fledging this year would be June 24.

Sections of ELM used by bobolinks:

Compared to other years, bobolink activity this year extended into a larger area, to include all quadrants of the meadow. In 2008 and 2009 observed bobolink activity was almost all in the SW quadrant. In 2010 the SW quadrant still had heavy use, but all quadrants except the East were also used. This year for the first time since 2001, all quadrants including the East quadrant had numerous observations of bobolinks. In addition, male and female bobolinks were seen several times in the goldenrod south of the South-Central quadrant (just east of where the trail from the bridge comes in). There was also heavier use of the North-Central quadrant compared to other years.

During this year's observations there was a steady low level of activity in the SW quadrant, rather than most activity being concentrated there.

The NW quadrant received only light use, mostly near its south and east edges, and only as perching sites (not bobolinks disappearing below into the grass). This is consistent with other years: when it is used at all, this quadrant is used only lightly, probably because it is so wet.

Judging by the destinations of bobolinks carrying food, I would guess that nests are located near the S edge of the SW quadrant (also an agitated male here); somewhere near observation point 4; somewhere in the middle of the S-Central quadrant; and in the goldenrod S of the S-Central quadrant. Another possible nest site could be the SE corner of the N-Central quadrant. I suspect, though I can't be sure, that the E quadrant is only used for food gathering, not nesting.

Effect of Re-Seeding and Implications for mowing or haying

The West Meadow, including the entire NW and SW quadrants and the west halves of the mid-central and south-central sections, was re-seeded in the spring of 2010 with a mixture of cool season and warm season grasses. According to Sheila Seaman of RGT, the seed composition used was 35% Canada rye-*Elymus canadensis*, 35% Timothy-*Phleum pratense* (cool season grasses) and 20% Deer Tongue-*Panicum clandestinum*, 5% Big Bluestem-*Andropogon gerardii*, and 5% India Grass- *Sorghastrum nutans* (warm season grasses). Its

structure as well as its species composition is now different than it was last year and different from the East Meadow.

The vegetation this year in the re-seeded area is predominantly dense timothy and red clover, with about 10% dock and a small amount of sensitive fern. Much of the timothy has fallen over with the weight of the rain on it, so that it forms a very dense horizontal cover. I wonder if much of this area is too dense for the bobolinks.

In the NW quadrant, the timothy and clover are not quite so dense, and there is a greater diversity of other grasses, as well as about a 5% cover of water hemlock (*Cicuta maculata*).

The east half of the meadow, which was not re-seeded is mostly orchard grass, not as dense as the re-seeded section. There is also scattered milkweed with patches of dense milkweed. There is also timothy and other grasses.

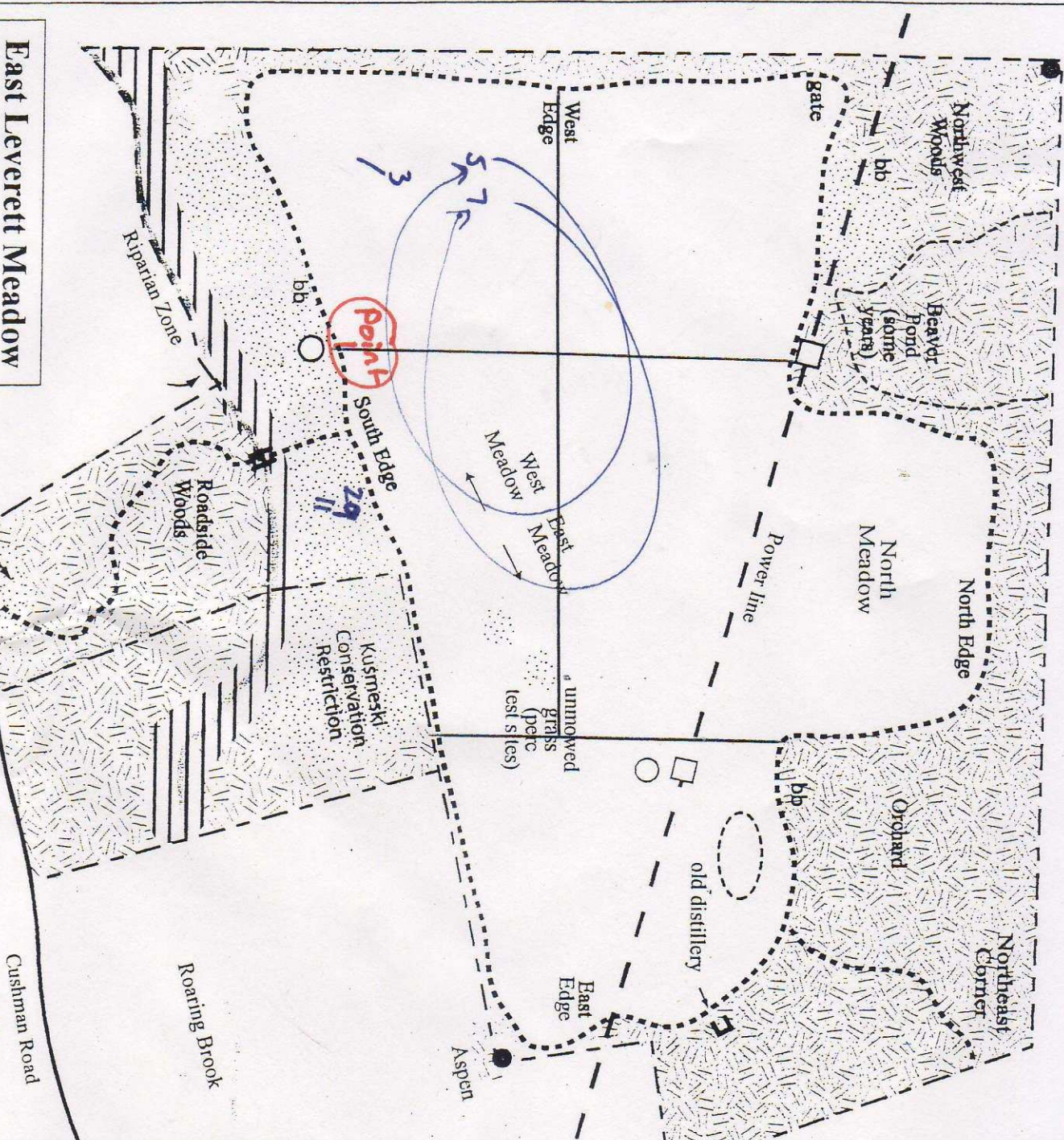
Interesting questions are raised by this year's observations of less use in the SW quadrant and more use of the other quadrants, including the East quadrant and areas outside the boundaries of the meadow. Is this changed pattern due to LESS favorable conditions, such as dense, fallen-down vegetation there? Or is the changed pattern due to MORE favorable conditions in the other sections of the meadow? Is the pattern observed this year due to observing the bobolinks at a different stage of breeding activity? Are the red winged blackbirds more attracted to the vegetation in the SW quadrant than they were before, and is their presence there excluding the bobolinks?

SUBMITTED BY:

Molly Hale, Wildlife Biologist
96 Oak Street
Florence, MA 01062
(413)585-0791
hellomolly@comcast.net

6/10/11

Shutesbury Road



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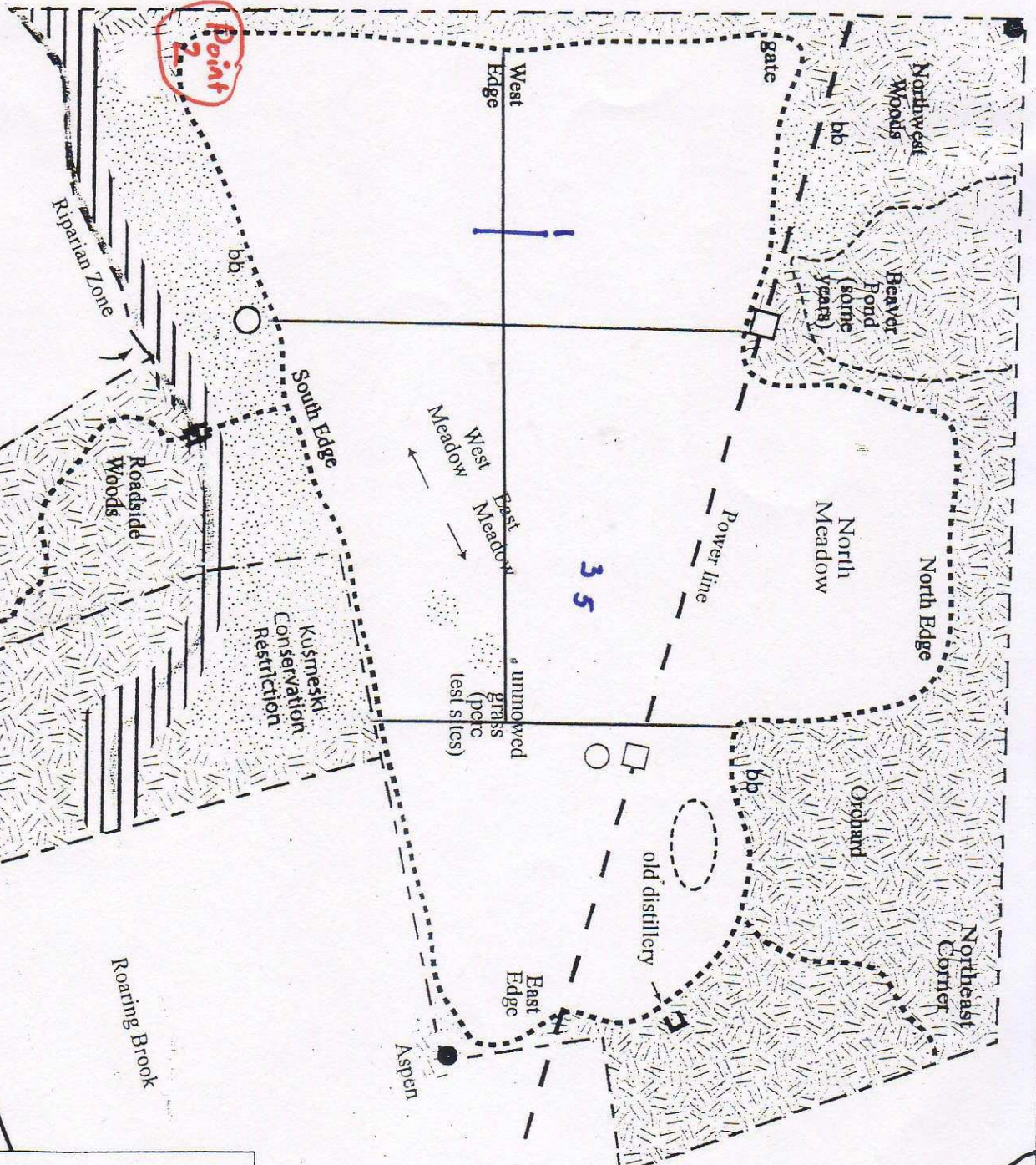
#3 #5 #7 9 #11
 4 to 6
 # male
 # female
 1

	Forts
	Brush/Trees
	Riparian Zone
	Electrical tower
	Hickory Tree
	Path
	Spring Pool, Beaver Pond
	Property Marker
	Property Line
	Bluebird Boxes

100 ft.

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males 3 # females 0

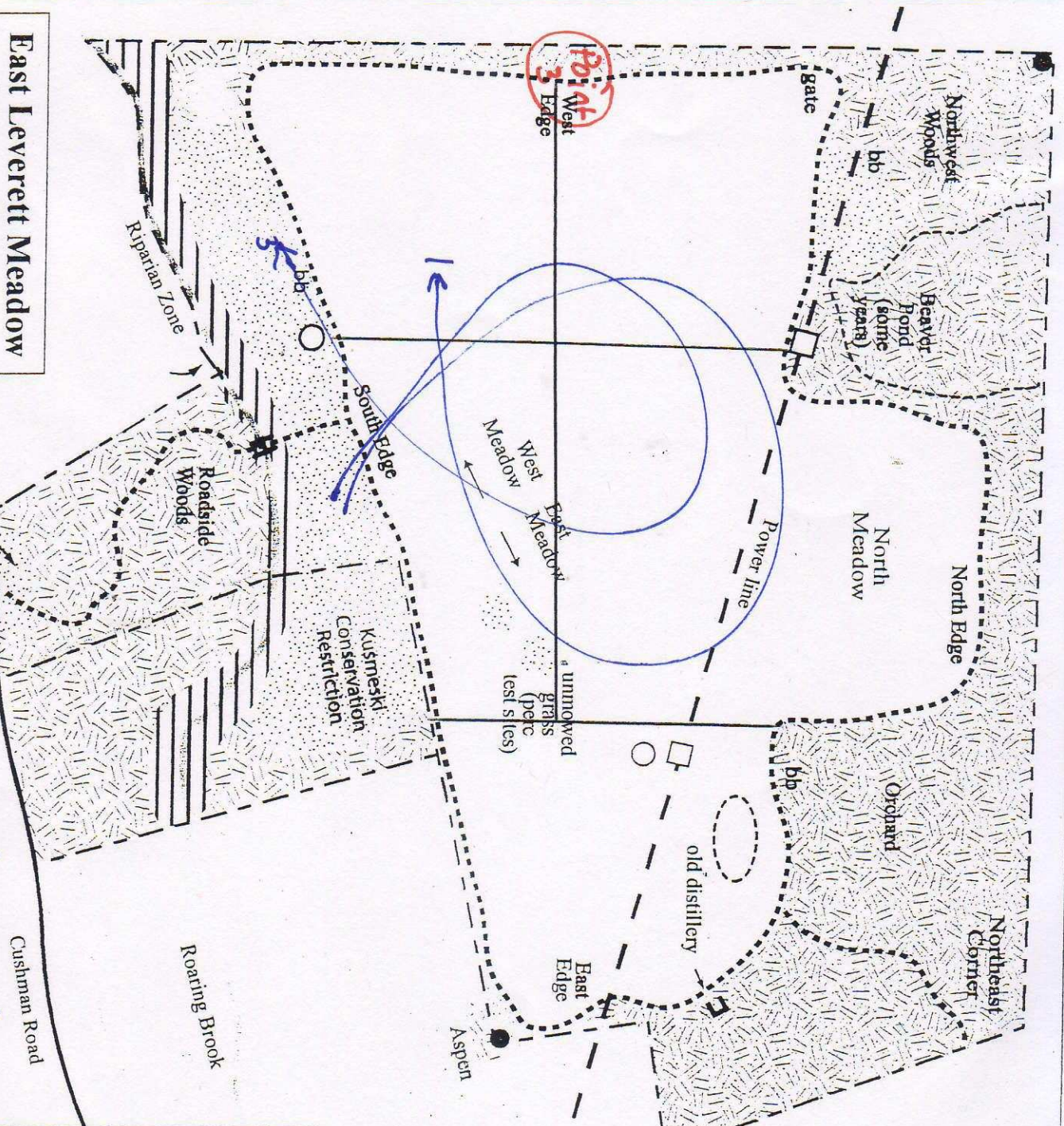


	Forts		100 ft.
	Brush/Trees		
	Riparian Zone		
	Electrical tower		
	Hickory Tree		
	Path		
	Spring Pool, Beaver Pond		
	Property Marker		
	Property Line		
	Bluebird Boxes		

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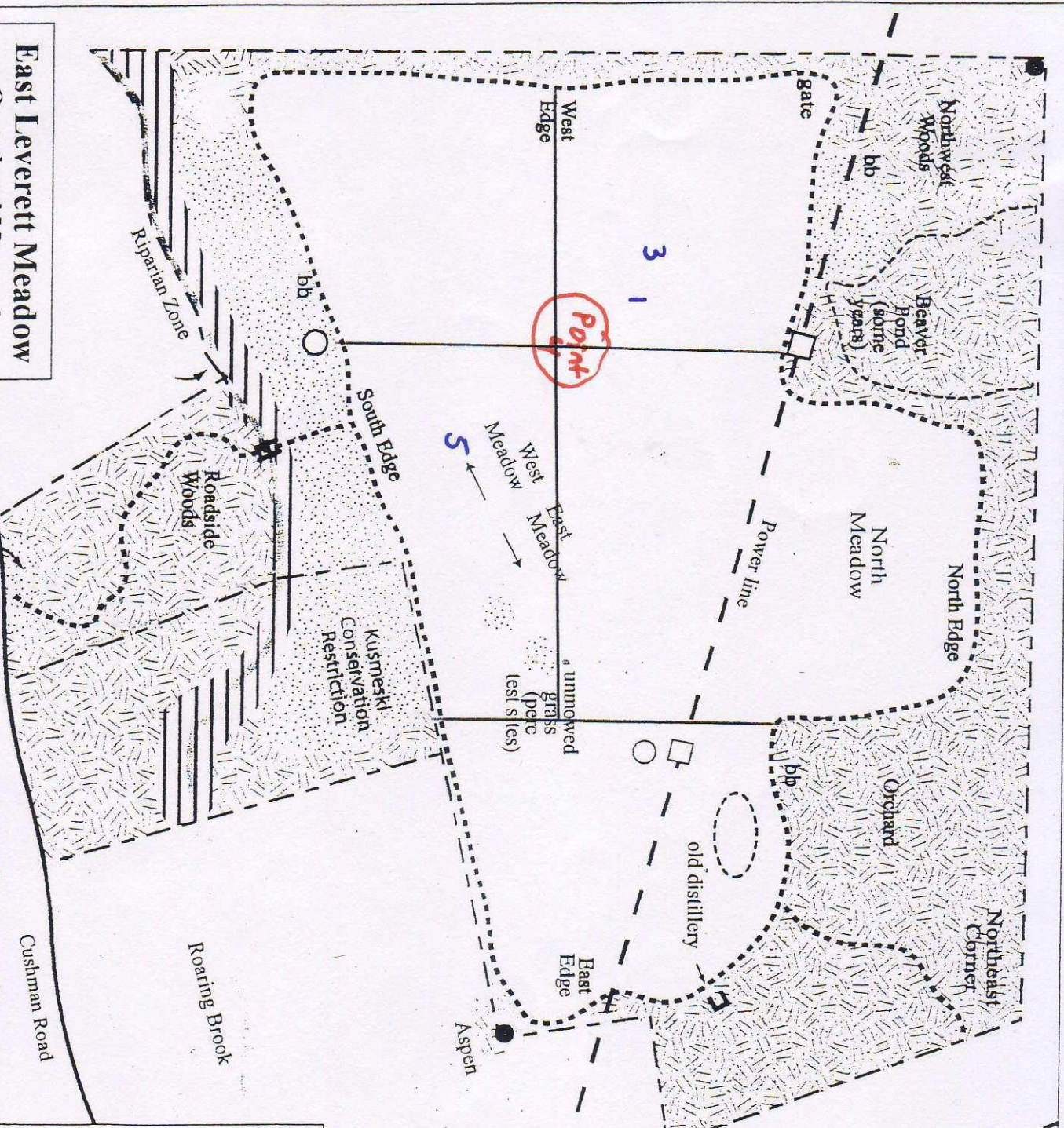
males 2 # females 0

1#3

	Forbs	
	Bruisb/Trees	
	Riparian Zone	
	Electrical tower	
	Hickory Tree	
	Path	
	Spring Pool, Beaver Pond	
	Property Marker	
	Property Line	
	bb Bluebird Boxes	

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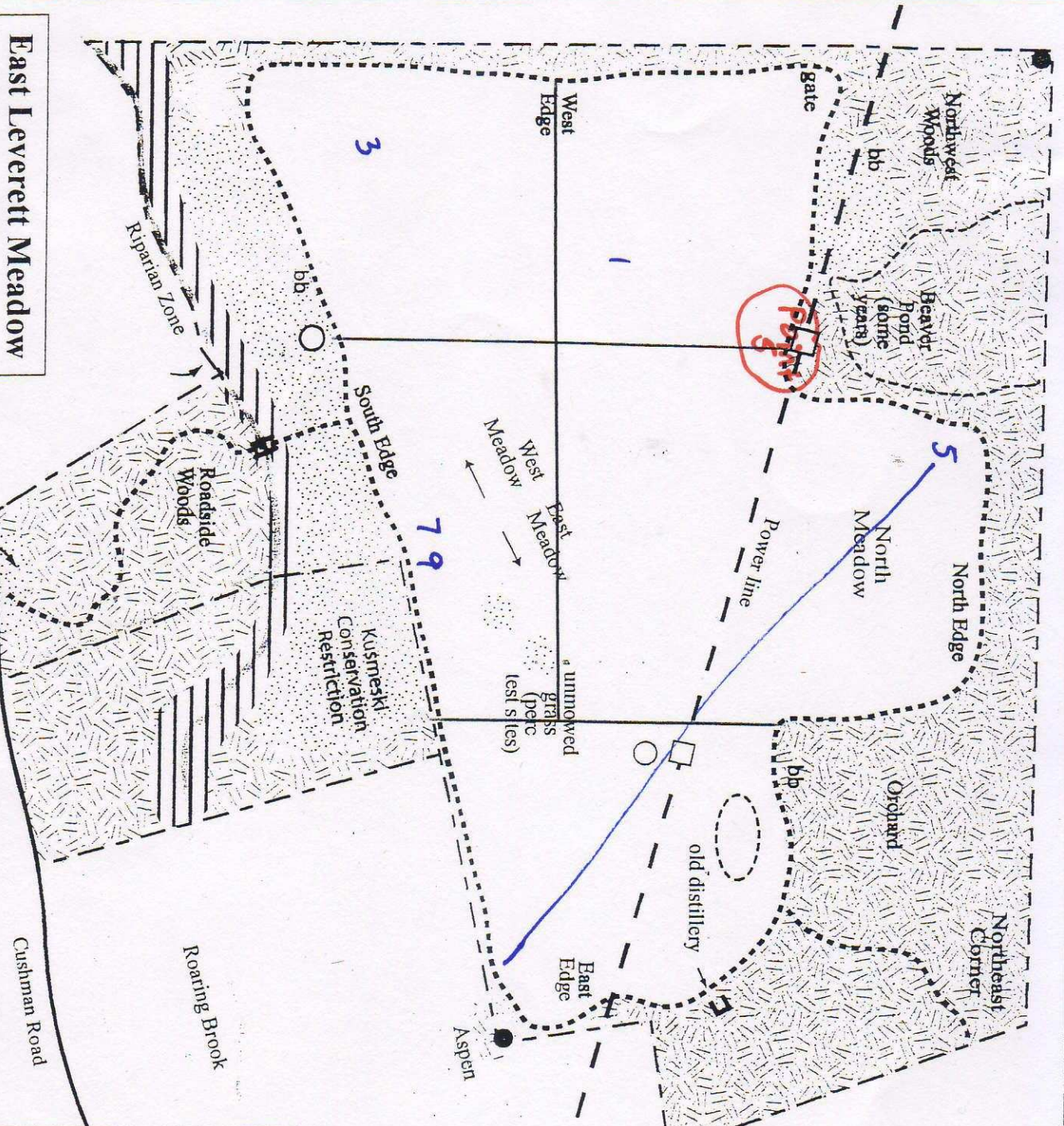
173#5

makes 3
 # female 0

	Forbs		100 ft.
	Briar/Tree		
	Riparian Zone		
	Electrical tower		
	Hickory Tree		
	Path		
	Spring Pool, Beaver Pond		
	Property Marker		
	Property Line		
	Bluebird Boxes		

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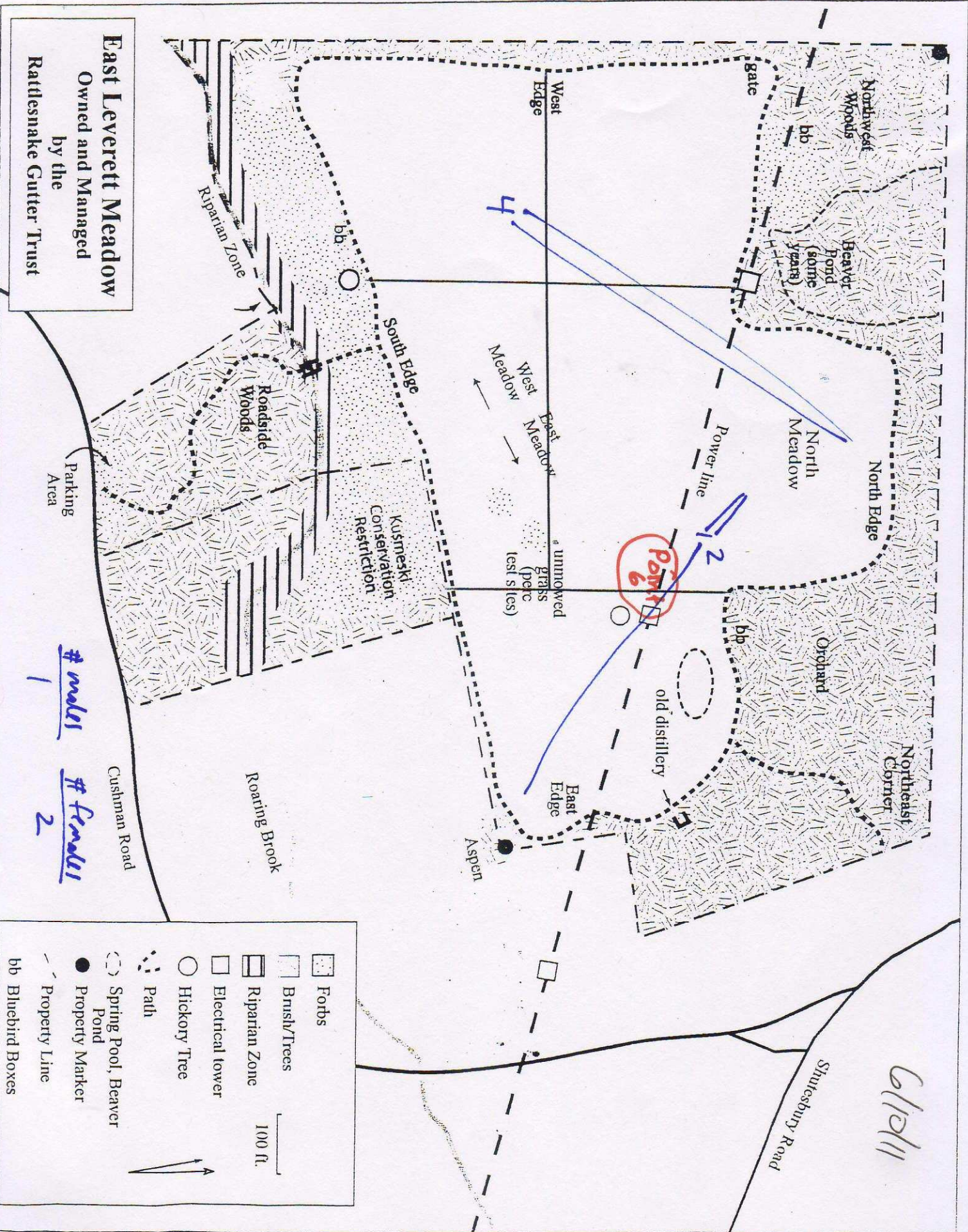
	Forts		100 ft.
	Brush/Trees		
	Riparian Zone		
	Electrical tower		
	Hickory Tree		
	Path		
	Spring Pool, Beaver Pond		
	Property Marker		
	Property Line		
	bb Bluebird Boxes		

173#5 5#7#9

#males 3 to 5 #females 0

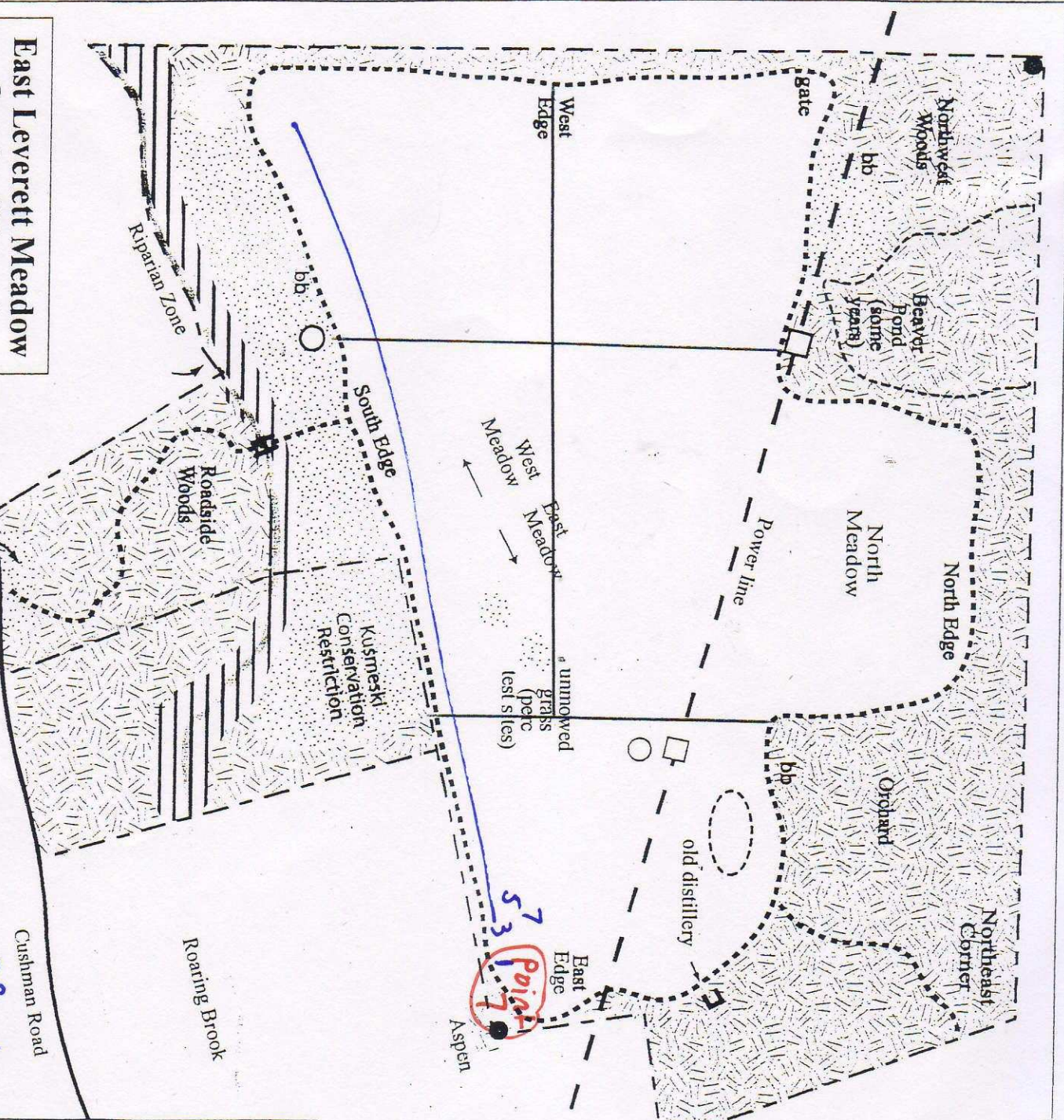
6/12/11

Shutesbury Road



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	Forbs
	Brush/Trees
	Riparian Zone
	Electrical tower
	Hickory Tree
	Path
	Spring Pool, Beaver Pond
	Property Marker
	Property Line
	Bluebird Boxes

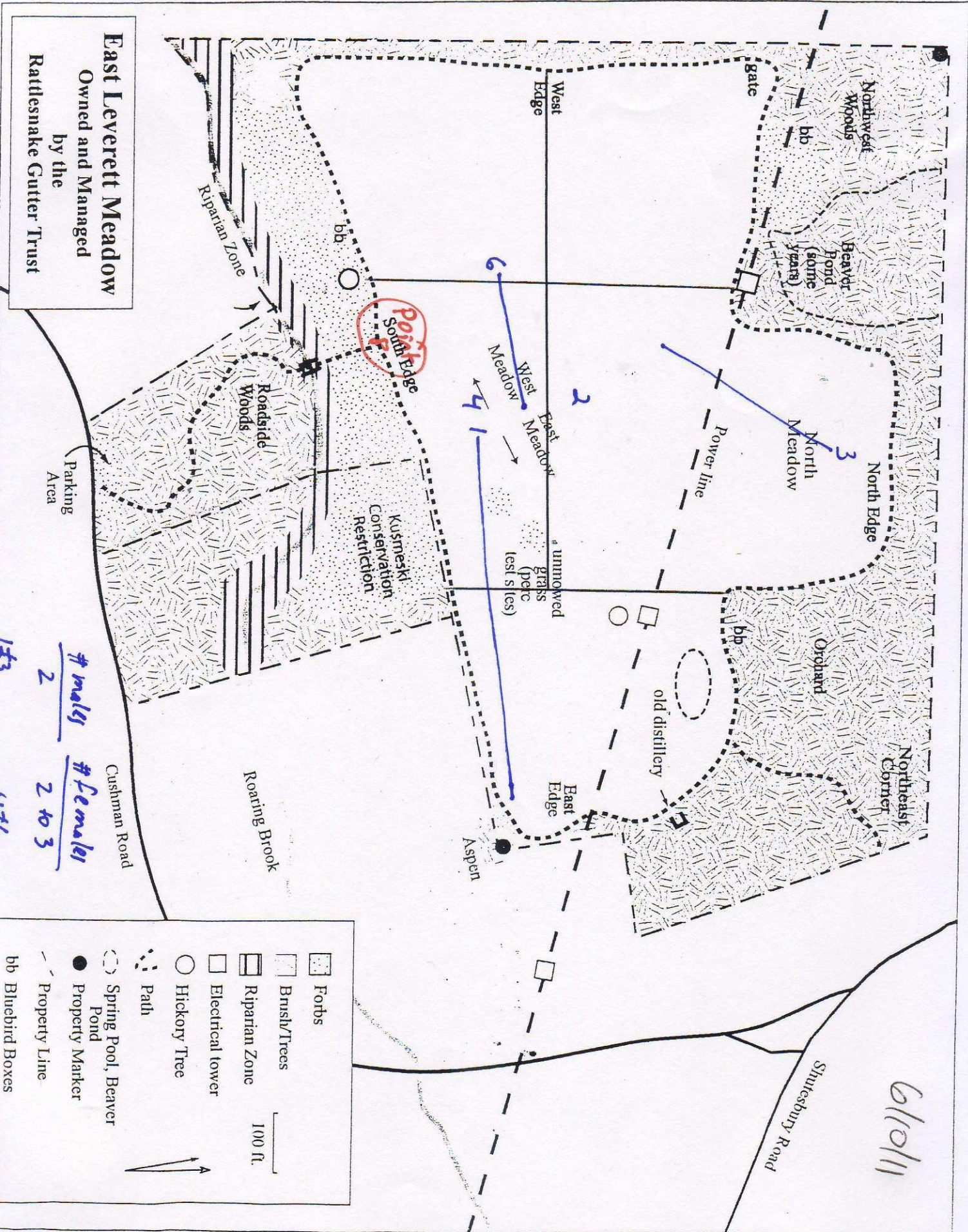
100 ft

1#3
 3#5#7
 #male 3 to 4
 #female 0
 Cushman Road

3#5#7

6/10/11

Shutesbury Road



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males 2
 # females 2 to 3
 1#3
 4#6
 2 = 4 or 6?

	Forts
	Brush/Trees
	Riparian Zone
	Electrical tower
	Hickory Tree
	Path
	Spring Pool, Beaver Pond
	Property Marker
	Property Line
	Bluebird Boxes

100 ft.