Shorebird Rapid Surveys

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These surveys can be done any where that is considered tundra. To complete a rapid survey, the 12 ha plot is systematically covered by a pair of surveyors in 1 to 2 hours, and all evidence of birds is recorded on a plot map (Figure 1). To cover a plot "systematically" means to survey the plot in a methodical manner so that surveyors are at, or close to, all points in the plot at some time during the survey. At featureless field sites, the survey has to be somewhat structured to ensure that the entire plot is covered. The pair of surveyors walks slowly through the plot transect-style, keeping roughly 25m apart, so that a given bird is never further than 12.5m from an observer. At the end of each 400m swath, observers walk eastward for 50m and then make another pass through the plot (Figure 2). We found that by planting flagged sticks at the beginning of the next swath, it is easy to stay lined up and on a straight line on your way back through the plot. We are not after military precision here, and you shouldn't spend an inordinate amount of time staying on transect or lined up with each other. It is CRITICAL YOU RECORD THE LOCATION OF THE 4 PLOT CORNERS!!!

In some locations, your chosen plot may be covered with snow. A judgement needs to be made here. If you think that the snow will melt before the end of your survey period, and it will be practical for you to return to the plot, postpone surveying it until later. If you judge that the plot will remain snow-covered, mark it as 'zero' birds and move on.

Plot maps can be drawn in your field book or on map sheets and clipboards. If you use your field book, please transfer the map and plot corner coordinates to a map sheet later the same day. Maps should include boundaries of habitat types, pond outlines, and other prominent features with reasonable accuracy, but you don't need to put a lot of time and effort into drawing them. You or your partner will also fill out a Habitat Data sheet (Figure 3) that describes the major habitat type(s) in the plot.

On the maps, we record observations of each species of shorebird and songbird in the plot at the time the survey begins (Figure 1). An observation can be of a pair (PR), a male (M), a female (F), or an individual of unknown sex (U). We record nests found (N) and also record probable nests. Probable nests (PN) are marked when a bird or pair of birds is displaying behaviour that makes it likely that there is a nest nearby – this requires behaviour knowledge – a suspicious bird should not be marked as a PN unless you are 99% sure there is a nest but you just can't find it. We collect as much information as possible to help us to determine which birds have nests, which are paired, etc. The only time that you should NOT record birds in the plot is when a) a pair of birds or an individual is associated with a nest or

probable nest (which you will already have recorded as N or PN); a flock (>5) birds of one species are together in the plot (in this case record them on your map sheet as 'incidentals'). Because these sheets are also used for the NWT/Nunavut Bird Checklist Survey, also mark on the map birds that are outside the plot, or that fly overhead (record both of these on the outside of the plot border). They should be listed in the 'incidentals' section of the Rapid Survey Summary Form (Figure 5).We are particularly interested in recording behaviours: e.g. skulking, feeding, alarm-calling, displaying, and other behaviours. When you discover nests, you also record the distance at which the bird flushes (flies off of, or runs away from, the nest) and basic nest site characteristics on the Nest Information sheet provided (Figure 4).

For bird species other than shorebirds or songbirds that you encounter in the rapid plots, simply record their presence on your map, and if there is a nest, record the appropriate nest data on the Nest Information sheet.

Immediately after each survey, a Rapid Survey Summary form (Figure 5 and Figure 6) is prepared from the information recorded on your maps. You are not asked on this form to make final estimates of the number of birds that have territories in the plot; you simply record actual nests seen, birds that probably have nests (according to their behaviour), pairs, and singles of each species of songbird or shorebird. We have taken this approach to estimates, rather than having the surveyors make the estimates, because there is a good deal of variation in how liberal or conservative surveyors are in making territory estimates. The rationale is that the birds likely have a territory somewhere, and if they are in your plot they would be missed were you to survey the plot that enclosed their territory, so it is valid to count them here. Biases caused by lingering, displaying migrants or birds that are foraging off-territory (among other factors) should be caught with the detection ratio on the intensive plots.

Deciding which sightings represent distinct pairs can be difficult, especially when bird densities are high. The best remedy for this problem is to keep track of individual birds, observing each one a number of times during the rapid survey. When densities are high, you should spend a good amount of time scanning ahead and looking backwards to work out territory boundaries and to sort out how many individuals and pairs are present.

At all times, it is extremely important that you write down detailed notes on your maps or in your notebook. When we analyse the data later we may need these justifications to properly make estimates.

You can use the survey method described above for songbirds as well as shorebirds. For songbirds encountered in the plots, we record similar information and determinations as for shorebirds.

Fig. 1: Sample plot map showing bird and habitat data recorded.

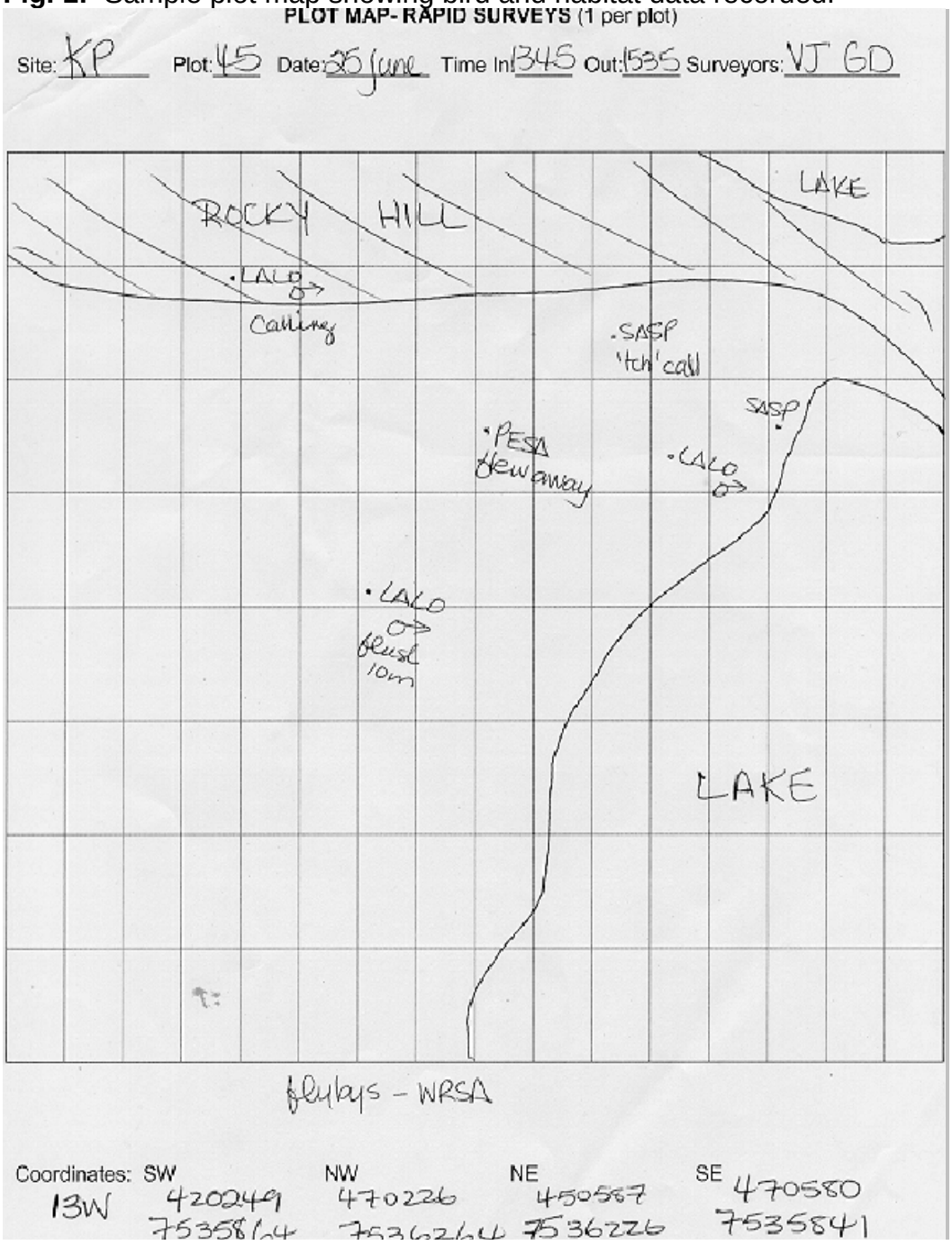
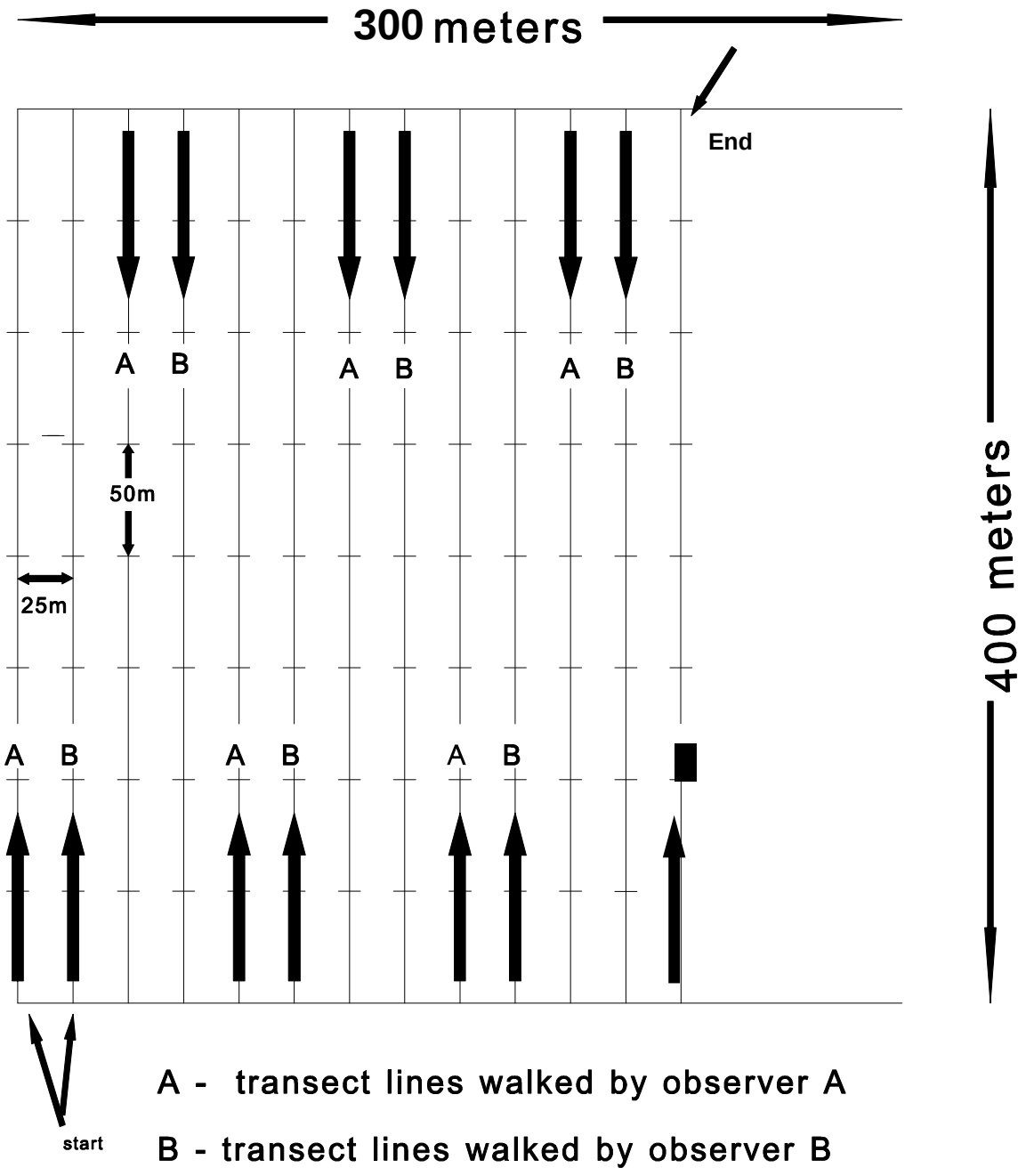


Figure 2. Rapid plot survey method.



HABITAT DATA SHEET
ARCTIC SHOREBIRD MONITORING PROGRAM

Site:_____ Plot:_____ Date:_____ Observer:_____

Total to left = 100%	**Dry/Upland Habitat** _____%	**Wet/Lowland Habitat** _____%	**Permanent Water** _____%
% standing water	_____	_____	_____% ponds
% barren (sparse/unvegetated)	_____	_____	
% moss & lichen	_____	_____	_____% lake
% graminoid	_____	_____	
% herbs	_____	_____	_____% river/stream
% dwarf shrub / heath	_____	_____	
% shrub	_____	_____	
Total of above =	**100%**	**100%**	**100%**
Landform[1]			
ground moisture (saturated, moist, dry)			
topography (flat, undulating, rolling, hilly)			
surface roughness (low, medium, high)			

General description of plot:

1 - note each landform present and circle most dominant one; includes high and low centered polygons, tussocky tundra, hummocky tundra, rock outcrops, eskers and beach ridges, mudflats, boulder fields and broken rock fields.

Figure 4. Nest information sheet.

Plot no. Species Nest fate: Comments								
Nest no. Location (E/N)								
Visit no.	Date (d/m)	Start/stop time	Observer	# eggs/ young	Flush distance (m)	Exposure (covered/exposed)	Pair? Behaviour	Predator present? Behaviour

Figure 5. RAPID SURVEY 2005 SUMMARY FORM (1 per plot)

Site:_____ Plot:____ Date:_____ Time In:_____ Out:_____ Surveyors:_____

Incidentals[1]:_____

Comments:_____

Species	**Nests**	**Probable Nest** [2,3]	**Pairs** [3]	**Males**	**Females**	**Unknown Sex**	
Comments **(Anything that we should know later when estimating no. of territories in plot from the info you have provided)**							
Comments							
Comments							
Comments							
Comments							

Comments

[1] Notable species seen off the plot - flybys and off transect birds should also be added.
[2] Only used when a nest distraction display is seen.
[3] Only count pairs that are NOT connected with a PN or N.

Figure 6. Sample- Completed rapid survey summary form.

Site: WBI Plot: 23A Date: 20 June/04 Time In:1330 Out: 1450 Surveyors: VJ,JR

Incidentals[2]: 1 Dark Morph GYRF flew along the coast

Comments: Lush habitat, fewer birds than expected

Species	Nests including pair	Prob Nest including pair [3]	Prs	Males	Females	???? sex		
REPH	3	1	1	1	2	0		
comments *The two lone females were coming and going – not likely associated with the plot. Confirmed that pair recorded is not associated with a nest or probable nest.*								
SESA	3	0	1	2	0	0		
comments (how did you arrive at final estimate?) *The males were displaying, and not associated with the nests found.*								
comments (how did you arrive at final estimate?)								
comments (how did you arrive at final estimate?)								
comments (how did you arrive at final estimate?)								
comments (how did you arrive at final estimate?)								