HATCH™

Saturn Power Inc.

Renewable Energy Approval Report

Volume 2B - Appendixes G to K

Gesner Wind Energy Project

H328628-0000-07-124-0001
Rev. F
October 2011

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October 2011

Project Report

October 6, 2011

Saturn Power Inc.
Gesner Wind Energy Project

Renewable Energy Approval Report

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Field Data

Point Count Data Form

Observer: SKM	Site: GES	Date: 05/07/08
Station ID: RF1	Visit #: V1	Start Time (HH:MM): 10:27
Beaufort Wind Scale: 2	Cloud Cover (%): 100	Temperature (°C): -1
Precipitation: —	Visibility: clear	
Remarks: Snow depth ~ 3-5 cm		

Aerial Foragers	
Species	Tally

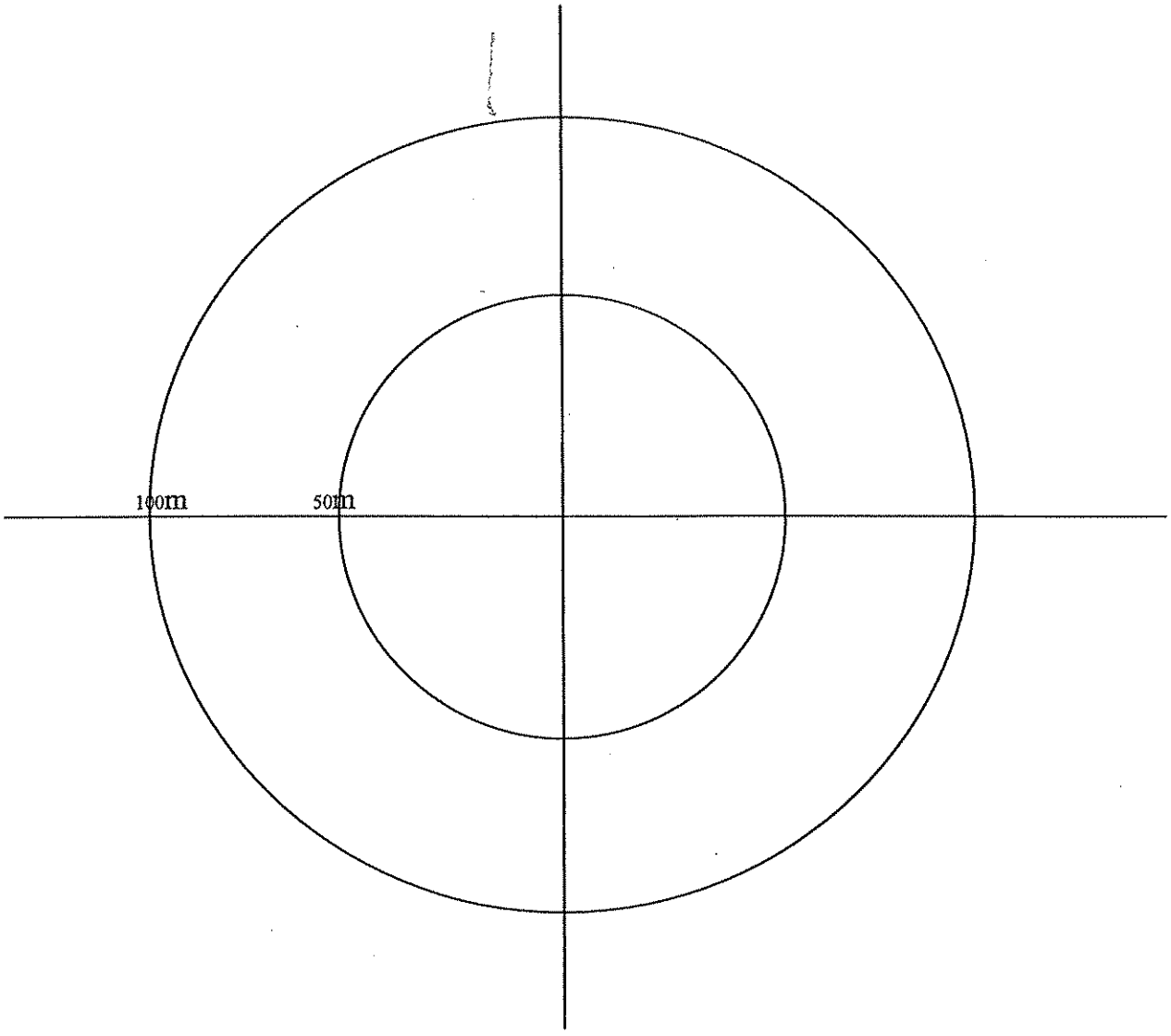
Symbols

- RWBL — Single bird, singing/calling
- RWBL → ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WA BS

Outside/Flythru
HOLA
AMCR
RTHA



Point Count Data Form

Observer: SKM	Site: GES	Date: 01/07/08
Station ID: RF2	Visit #: V1	Start Time (HH:MM): 10:40
Beaufort Wind Scale: 2	Cloud Cover (%): 100	Temperature (°C): -1
Precipitation: —	Visibility: good	
Remarks:		

Aerial Foragers	
Species	Tally

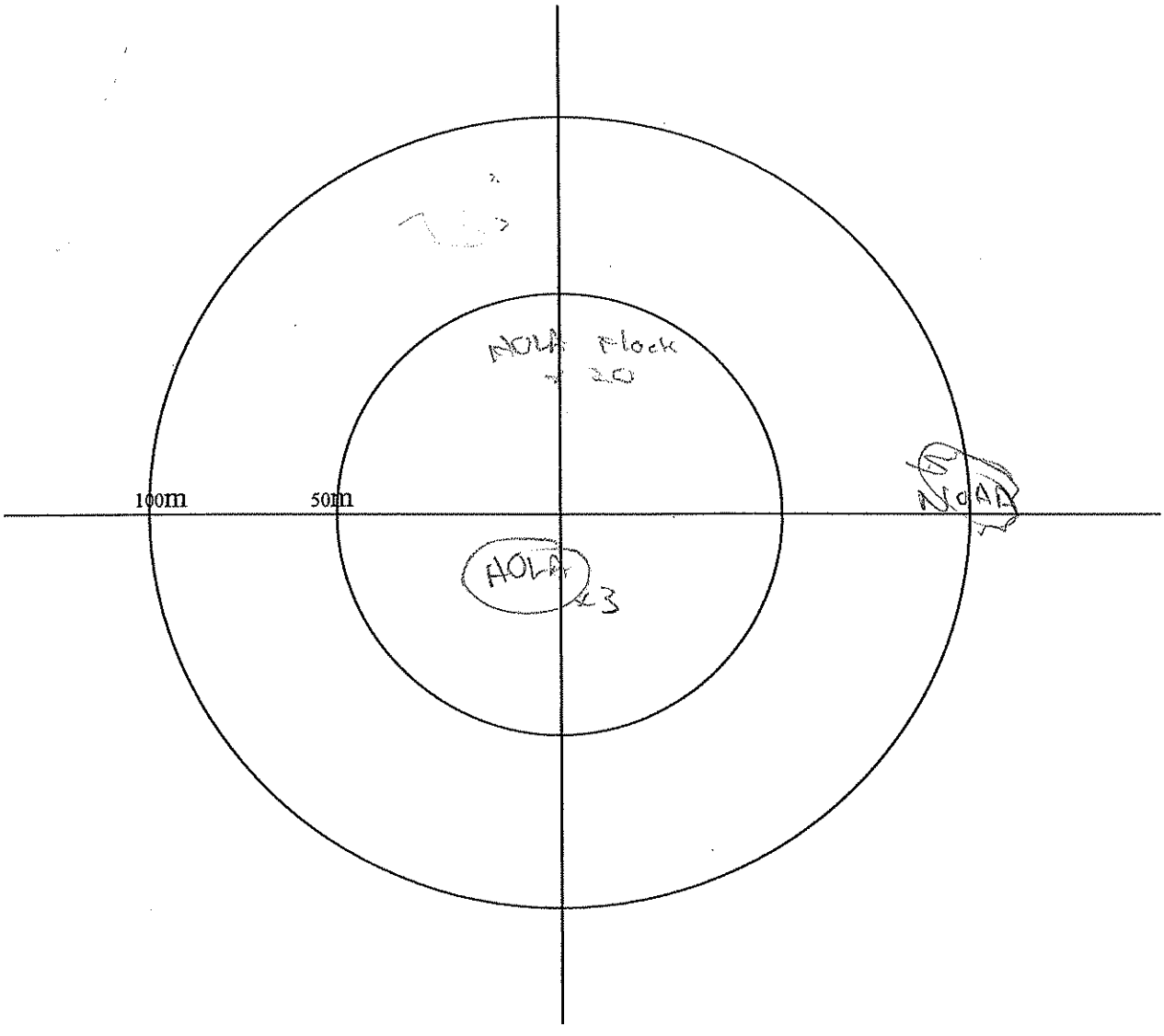
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- O—→O known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru
COHA
MODO
NOHA (2)



Point Count Data Form

Observer: SKM	Site: GCS	Date: 07/07/08
Station ID: PFS	Visit #: V1	Start Time (HH:MM): 10:14
Beaufort Wind Scale: 2	Cloud Cover (%): 10e	Temperature (°C): -1
Precipitation: -	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← → RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

1 - BTH

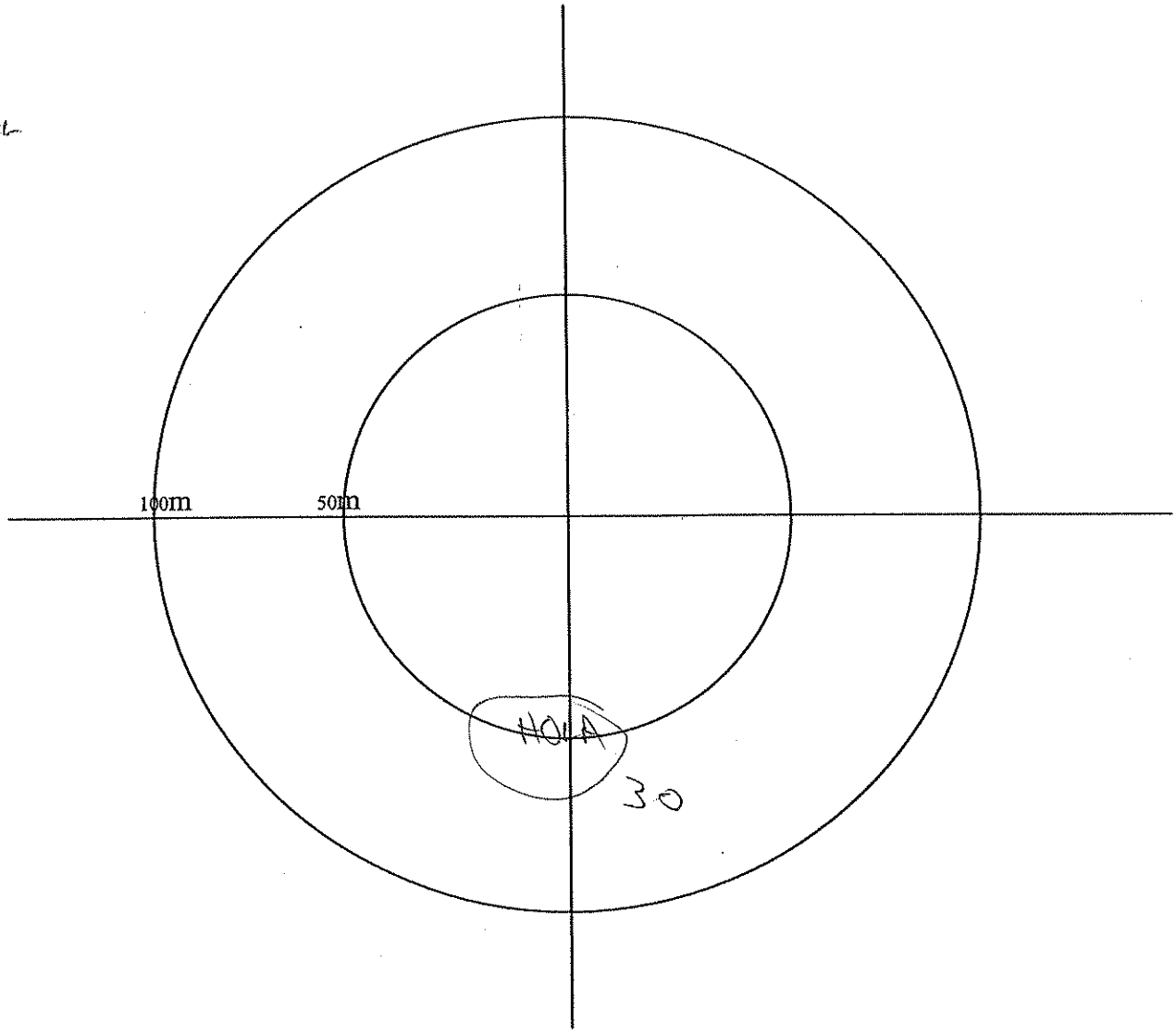
2 - Close to TH

3 - WBS

4 - WABS

Outside/Flythru
TWBL
AMCR
MODO

GRSOutREL



Point Count Data Form

Observer: Skm	Site: CCS	Date: 02/07/08
Station ID: FF4	Visit #: W1	Start Time (HH:MM): 10:53
Beaufort Wind Scale: 1	Cloud Cover (%): 100	Temperature (°C): -1
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

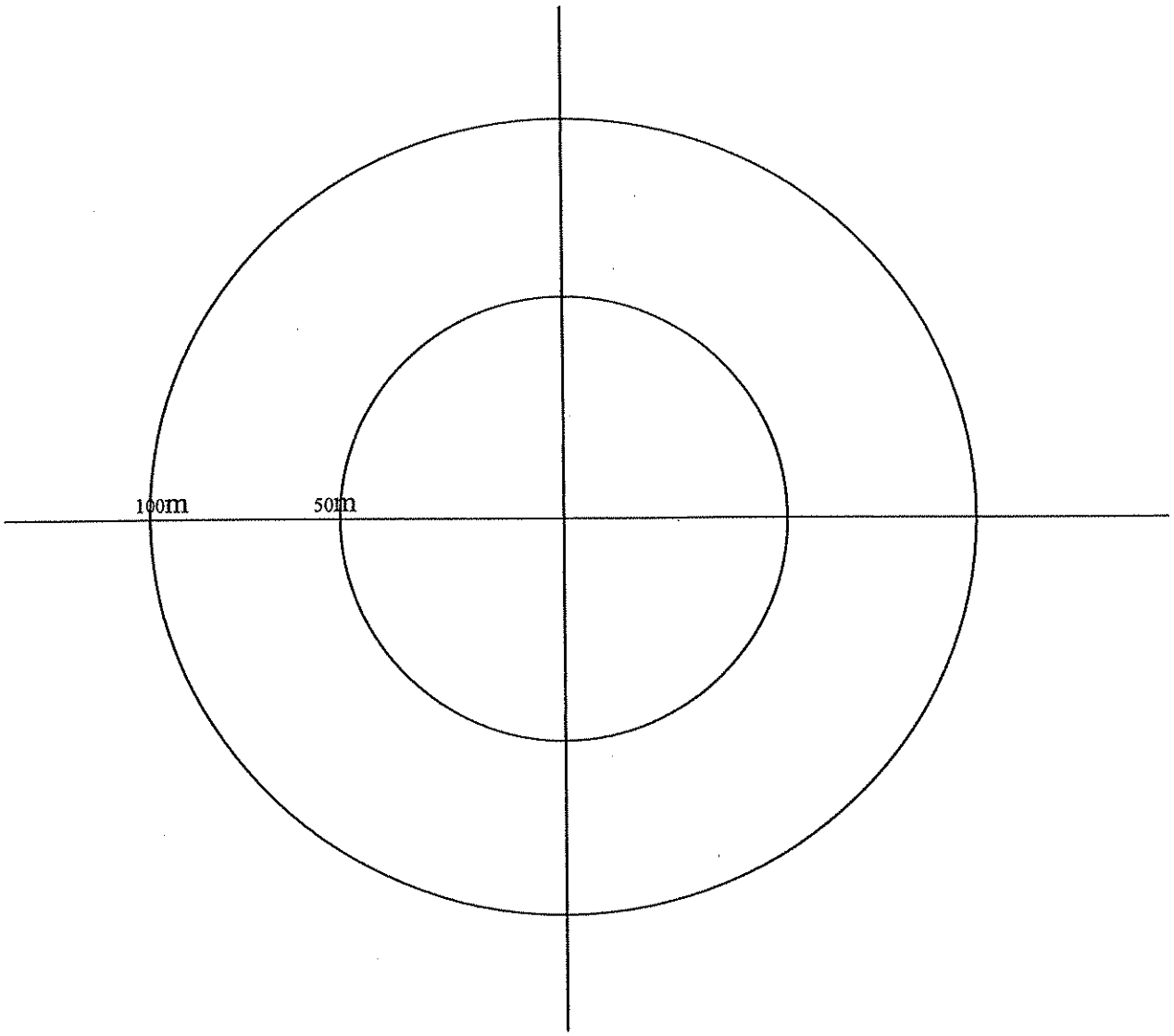
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← → RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WA BS

Outside/Flythru
> RWBL



Point Count Data Form

Observer: SKM	Site: CC5	Date: 02/07/08
Station ID: FR5	Visit #: V1	Start Time (HH:MM): 11:17
Beaufort Wind Scale: 2	Cloud Cover (%): 100	Temperature (°C): -2
Precipitation: —	Visibility: good	
Remarks:		

Aerial Foragers	
Species	Tally

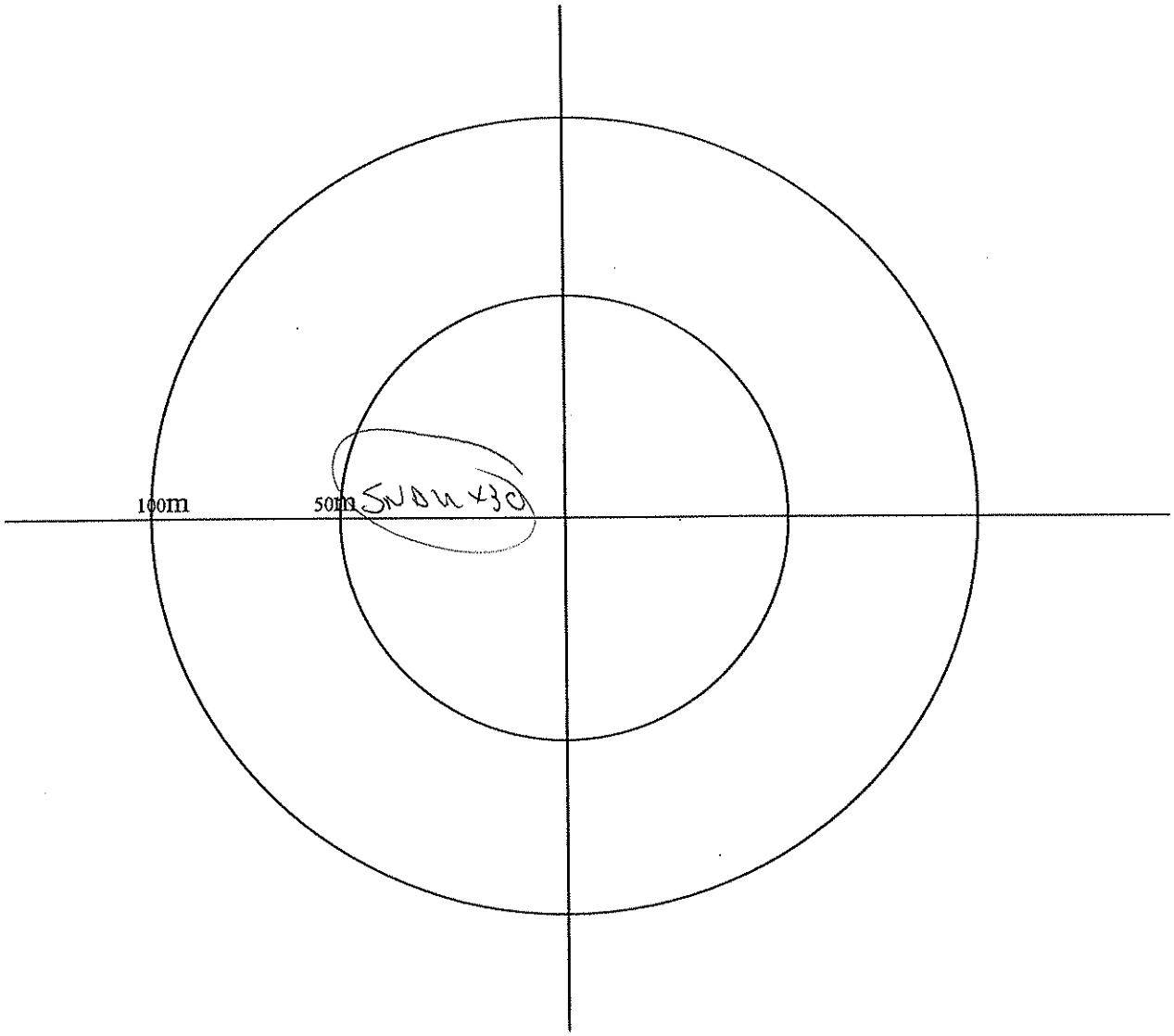
Symbols

- RWBL — Single bird, singing/calling
- RWBL ⟷ RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru



Point Count Data Form

Observer: SAM	Site: GES	Date:
Station ID: FF6	Visit #: W1	Start Time (HH:MM): 11:05
Beaufort Wind Scale: 2	Cloud Cover (%): 100	Temperature (°C): -1
Precipitation: trace snow	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

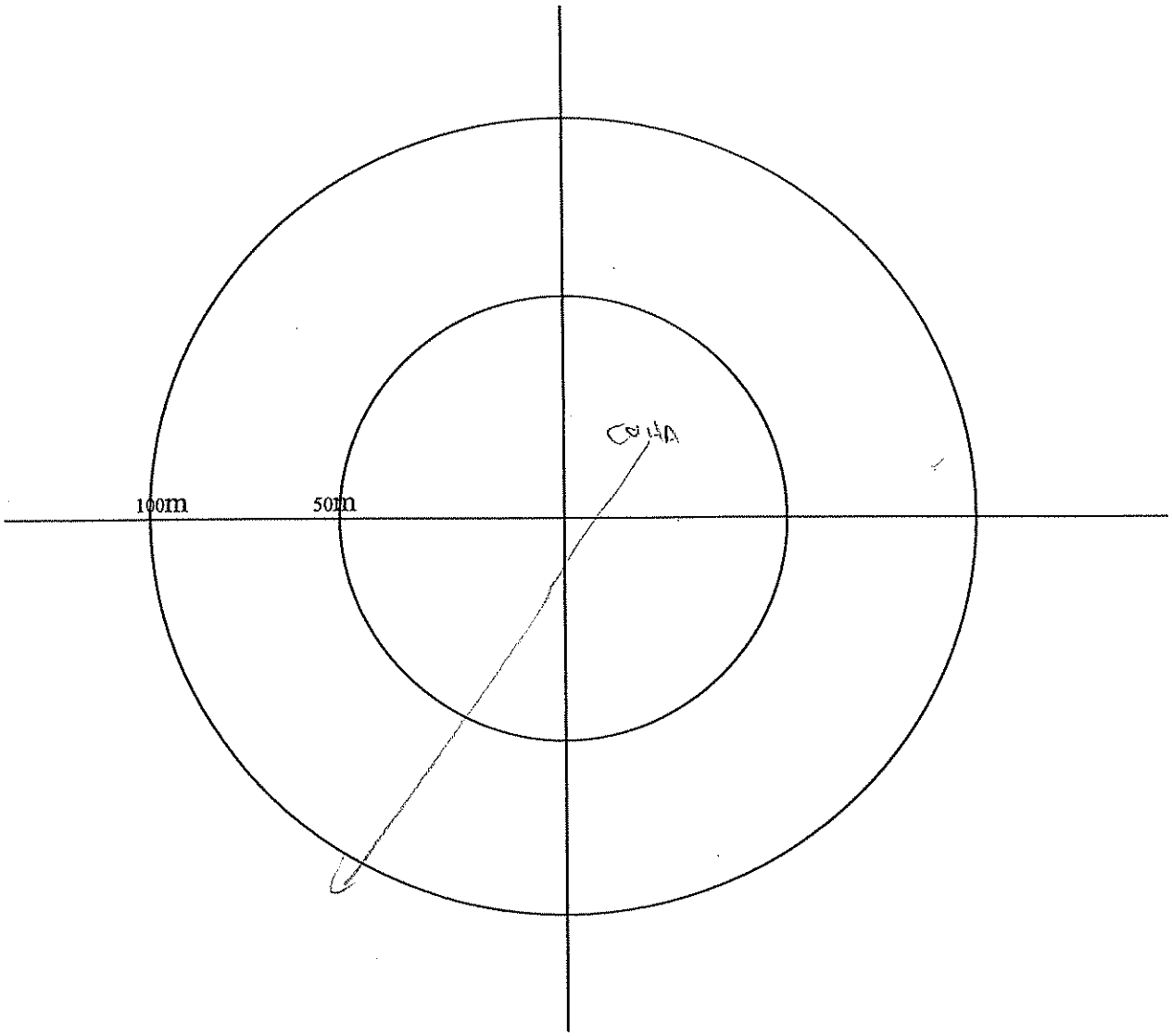
Symbols

- SWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - W BS
4 - WA BS

Outside/Flythru
AMCR
HOLA - 2



Point Count Data Form

Observer: SKM	Site: GES	Date: 02/07/08
Station ID: FF7	Visit #: V1	Start Time (HH:MM): 11'28
Beaufort Wind Scale: 2	Cloud Cover (%): 100	Temperature (°C): -2
Precipitation: trace snow	Visibility: good	
Remarks:		

Aerial Foragers	
Species	Tally

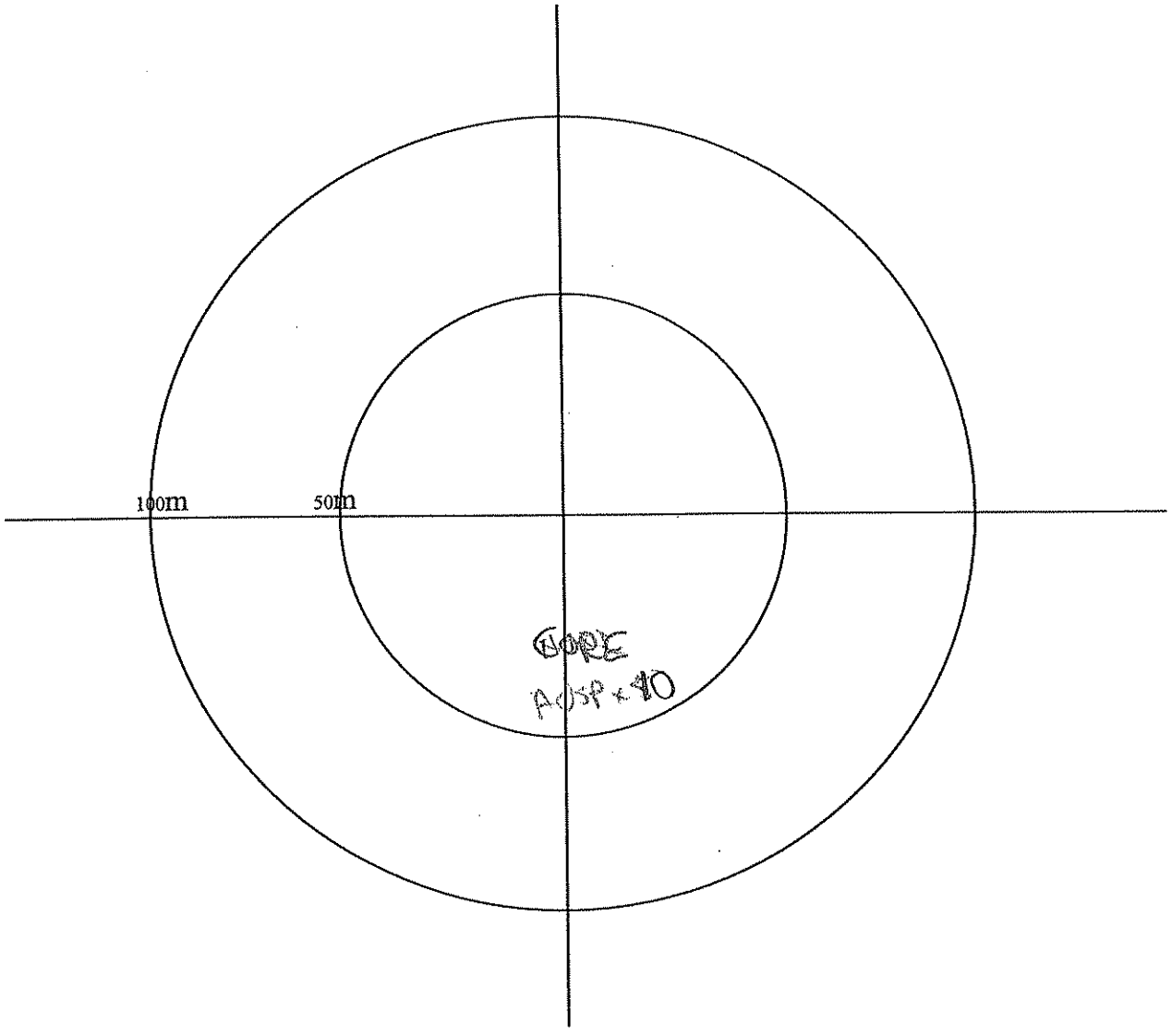
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru



Point Count Data Form

Observer: Skm	Site: GES	Date: 02/07/08
Station ID: EF9	Visit #: V1	Start Time (HH:MM): 13:01
Beaufort Wind Scale: 3	Cloud Cover (%): 100	Temperature (°C): -2
Precipitation: Trace	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

(RWBL) Single bird, singing/calling

(RWBL) ⟷ (RWBL) Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

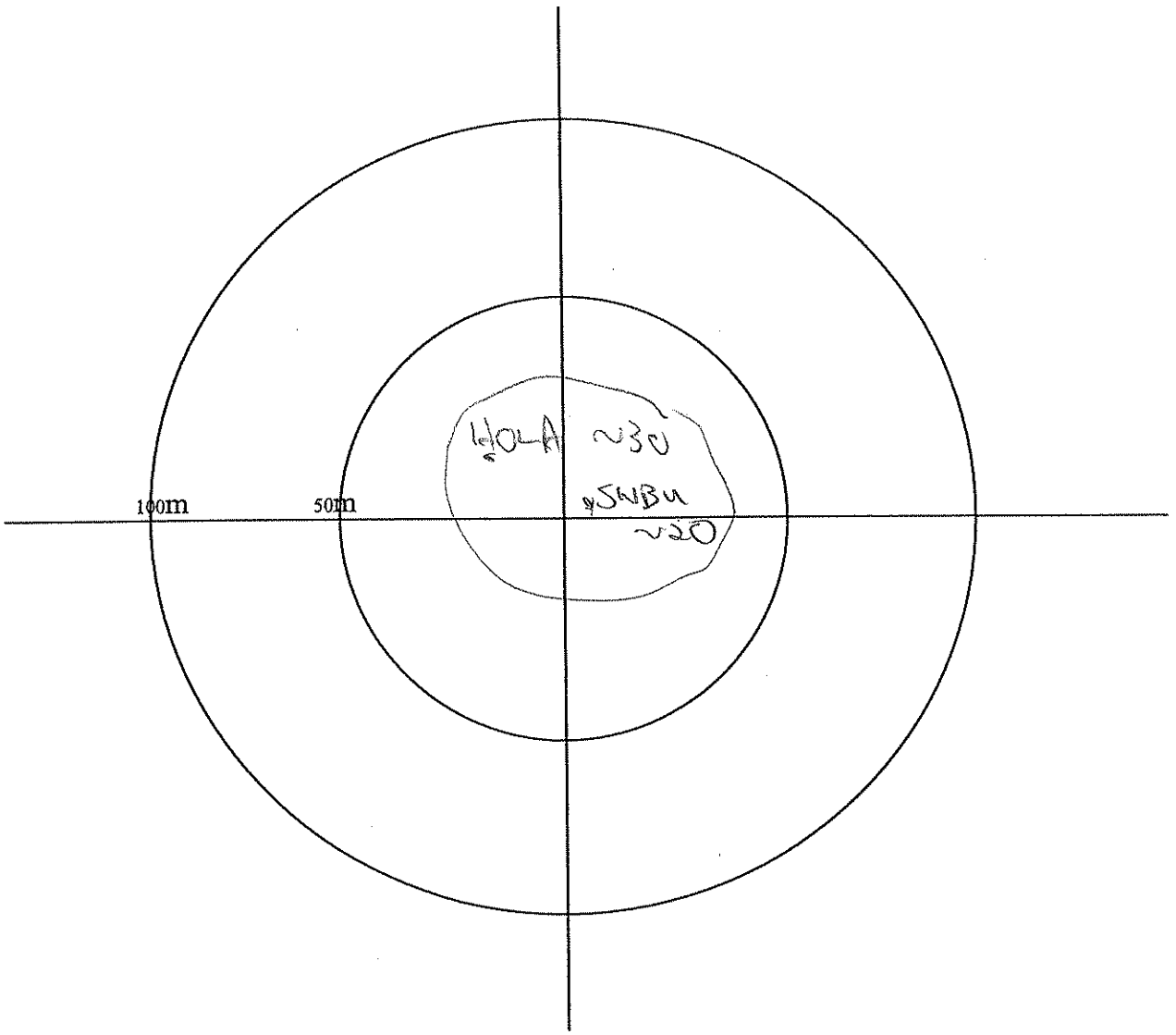
1 - BTH

2 - close to TH

3 - V BS

4 - WA BS

Outside/Flythru



Point Count Data Form

Observer: Skm	Site: GCS	Date:
Station ID: PF10	Visit #: V1	Start Time (HH:MM): 13:29
Beaufort Wind Scale: 3	Cloud Cover (%): 100	Temperature (°C): -2
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

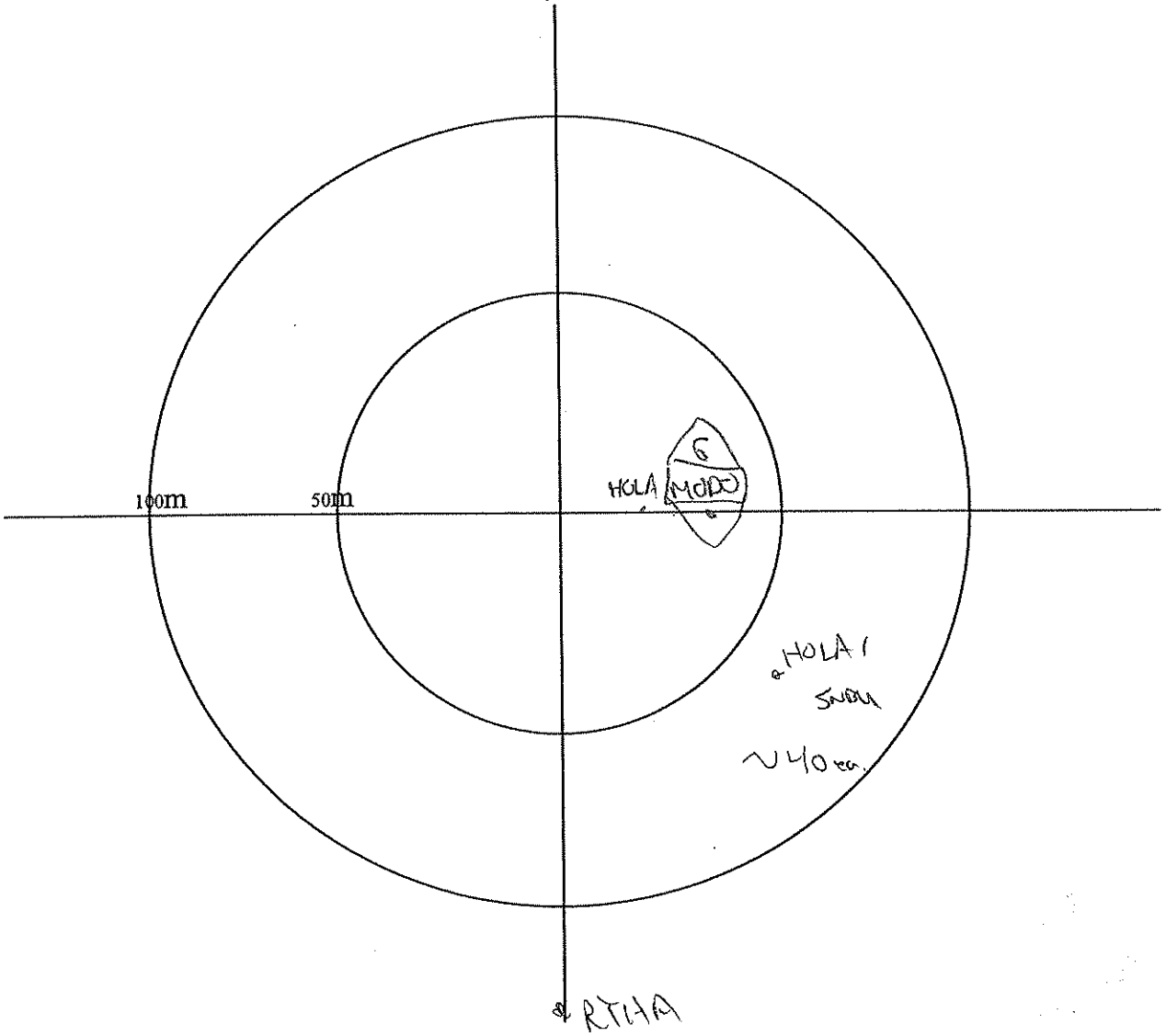
Symbols

- RWBL — Single bird, singing/calling
- RVBL ← RVBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs, but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WABS

Outside/Flythru



Point Count Data Form

Observer: SKM	Site: GES	Date: 04/07/08
Station ID: EF 11	Visit #: V1	Start Time (HH:MM): 13:13
Beaufort Wind Scale: 2	Cloud Cover (%): 100	Temperature (°C): -1
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL → ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

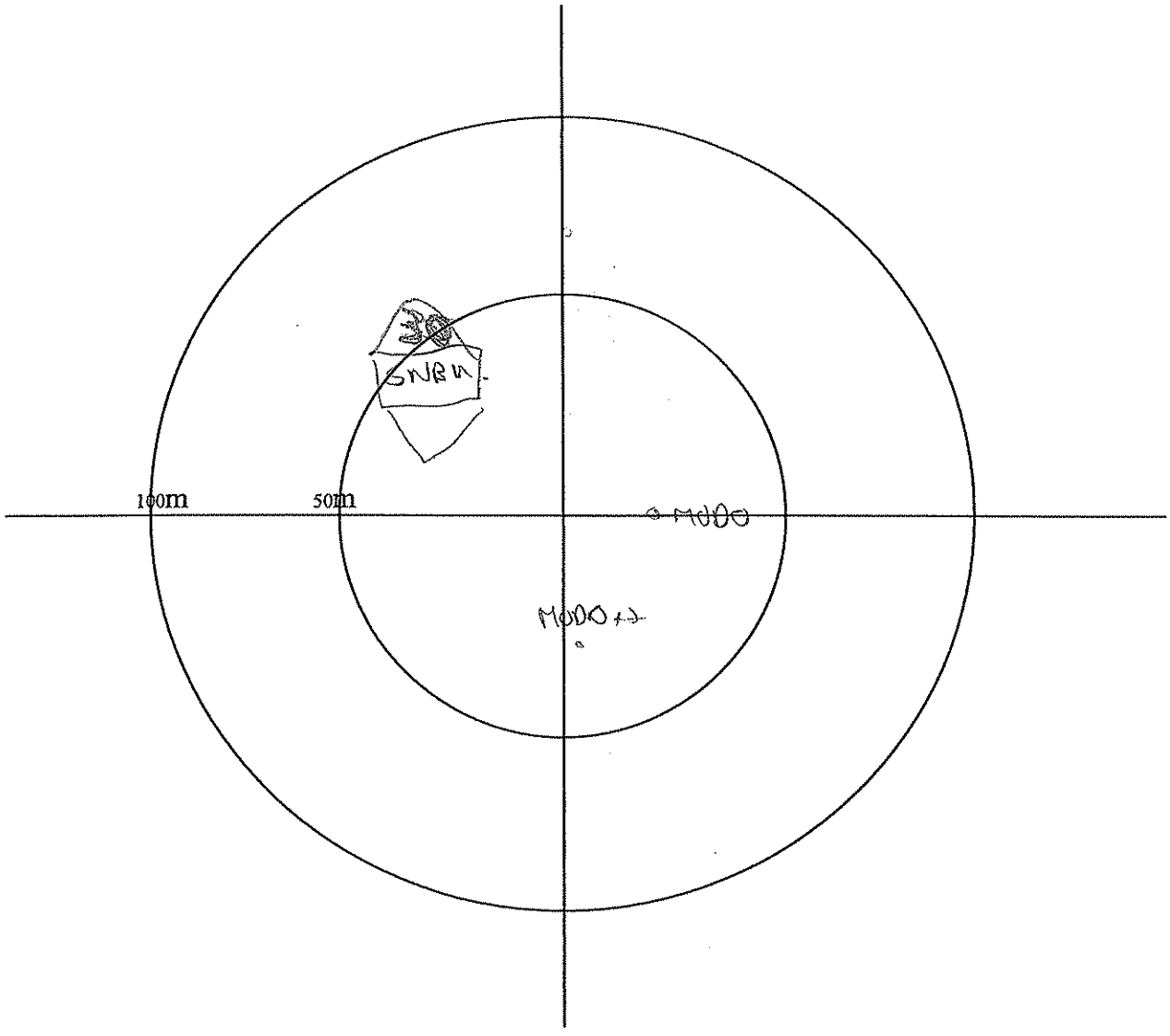
1 - BTH

2 - close to TH

3 - V BS

4 - WA BS

Outside/Flythru
AMCR x 4
RTHA
MOLA



Point Count Data Form

Observer: SKM	Site: GES	Date: 02/07/08
Station ID: FF12	Visit #: W1	Start Time (HH:MM): 13:42
Beaufort Wind Scale: 2	Cloud Cover (%): 100	Temperature (°C): -1
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL + RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

1 - BTH

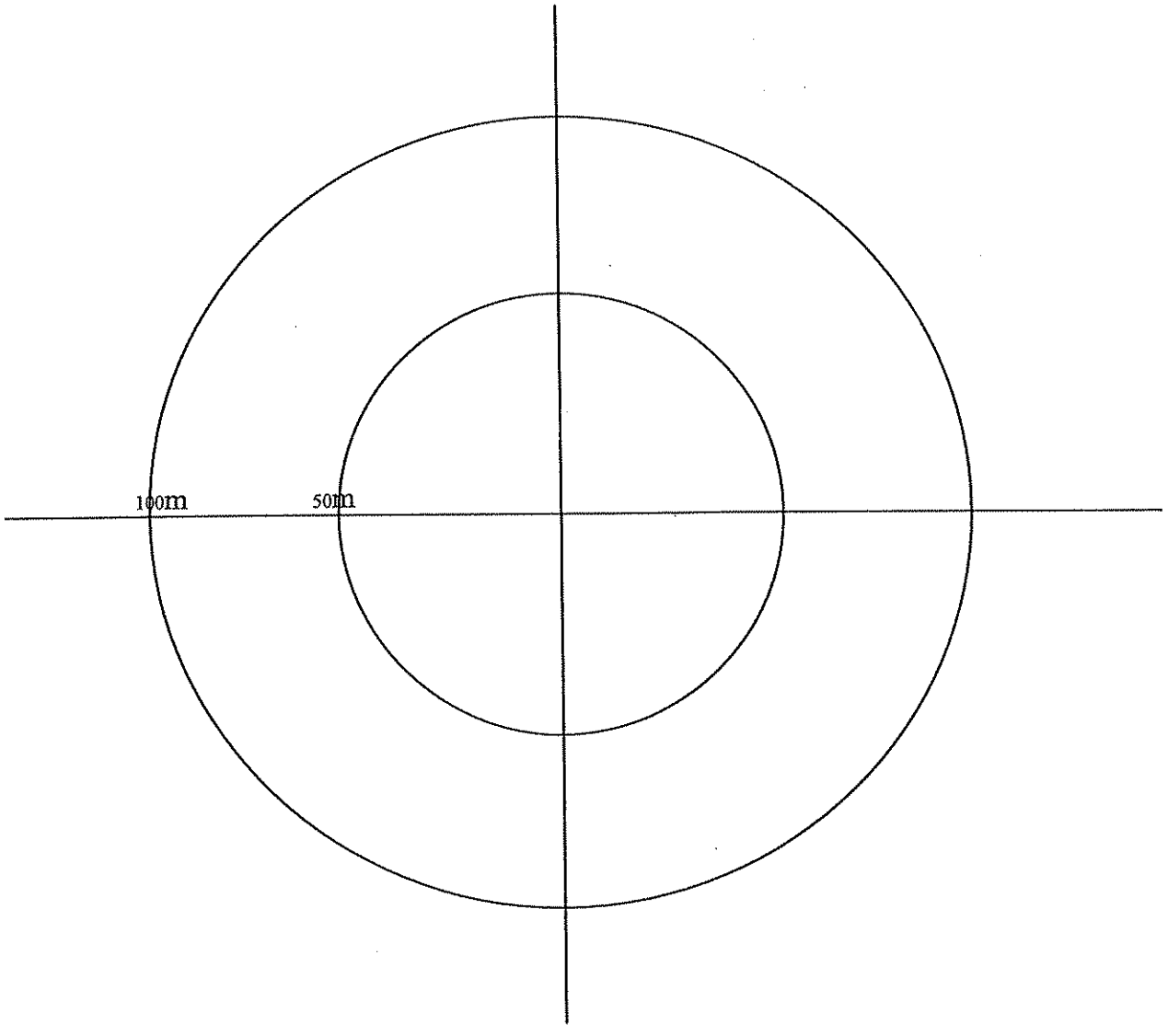
2 - close to TH

3 - W BS

4 - WA BS

Outside/Flythru

SSHA



Point Count Data Form

Observer: SKM	Site: GES	Date:
Station ID: RF B	Visit #: 1	Start Time (HH:MM): 12:35
Beaufort Wind Scale: 3	Cloud Cover (%): 100	Temperature (°C): -3
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL → ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

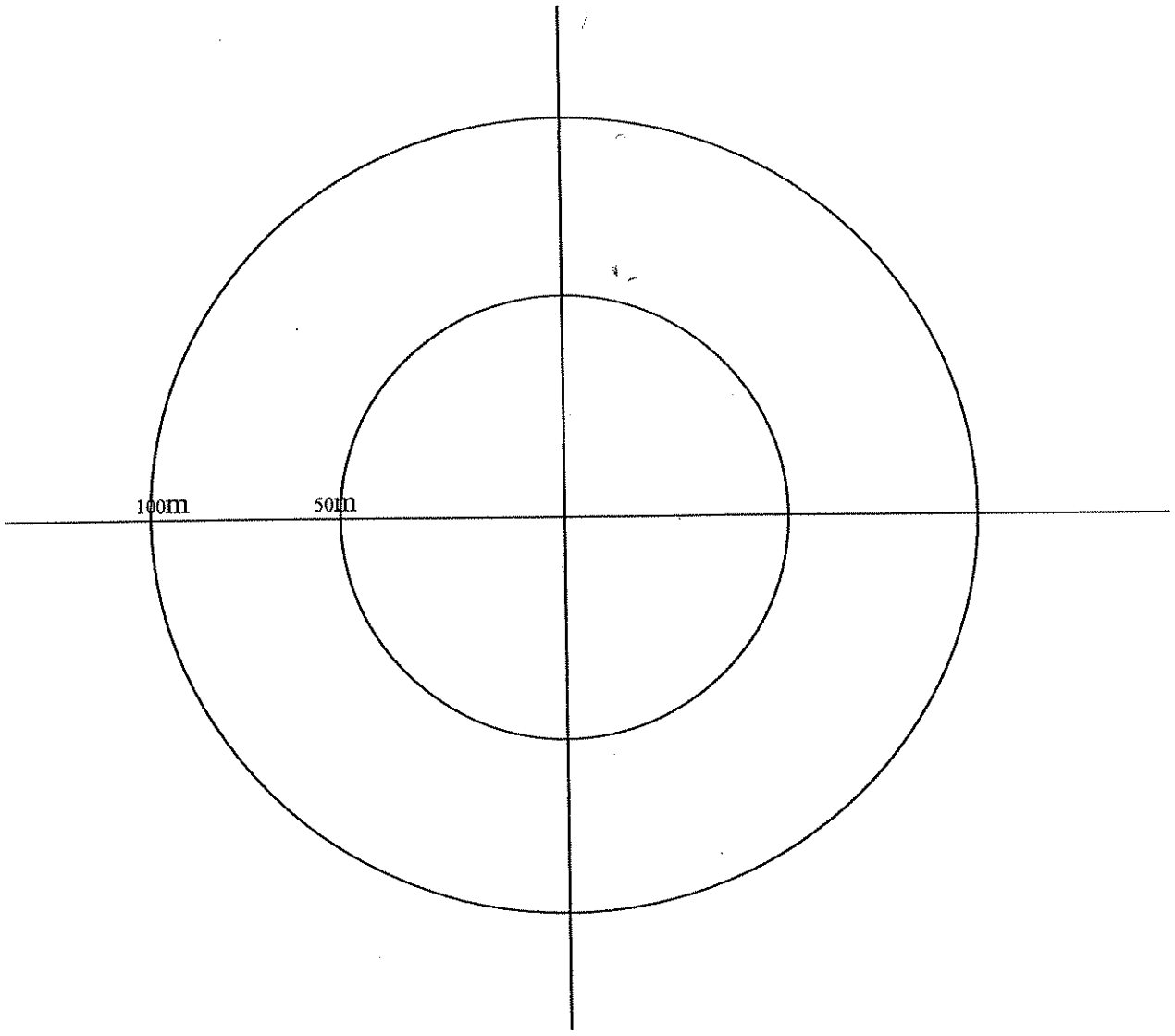
1 - BTH

2 - close to TH

3 - U BS

4 - WA BS

Outside/Flythru
BLJA
HOLA x4



Point Count Data Form

Observer: SKM	Site: GES	Date: 02/09/08
Station ID: FF14	Visit #: V1	Start Time (HH:MM): 12:35
Beaufort Wind Scale: 3	Cloud Cover (%): 60	Temperature (°C): -2
Precipitation: —	Visibility: good	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL + RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

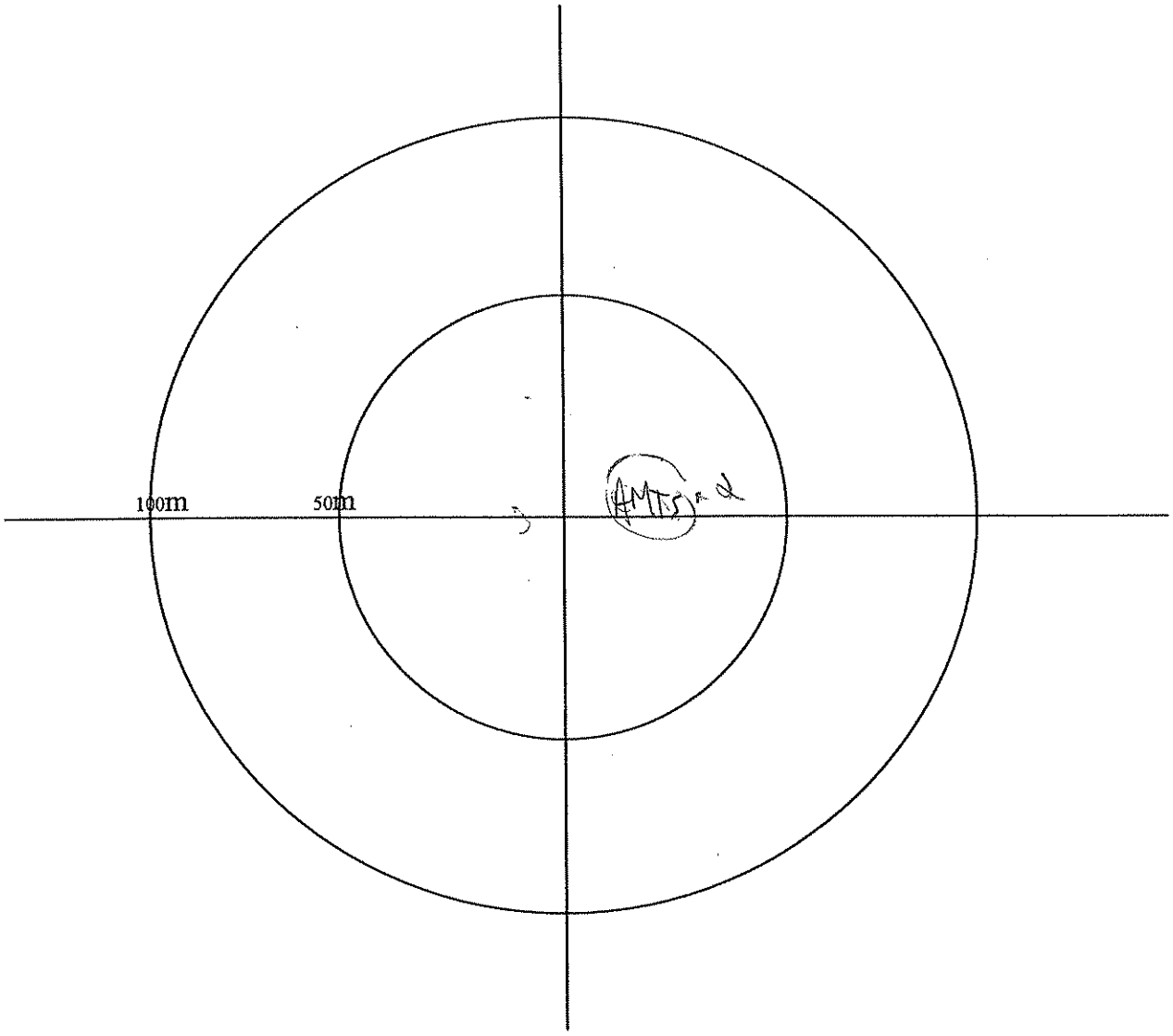
1 - BTH

2 - close to TH

3 - U BS

4 - WA BS

Outside/Flythru
RTHA



Point Count Data Form

Observer: SKM	Site: GES	Date: 02/07/08
Station ID: FF 15	Visit #: W1	Start Time (HH:MM): 12:14
Beaufort Wind Scale: 3	Cloud Cover (%): 100	Temperature (°C): ~2
Precipitation: trace	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

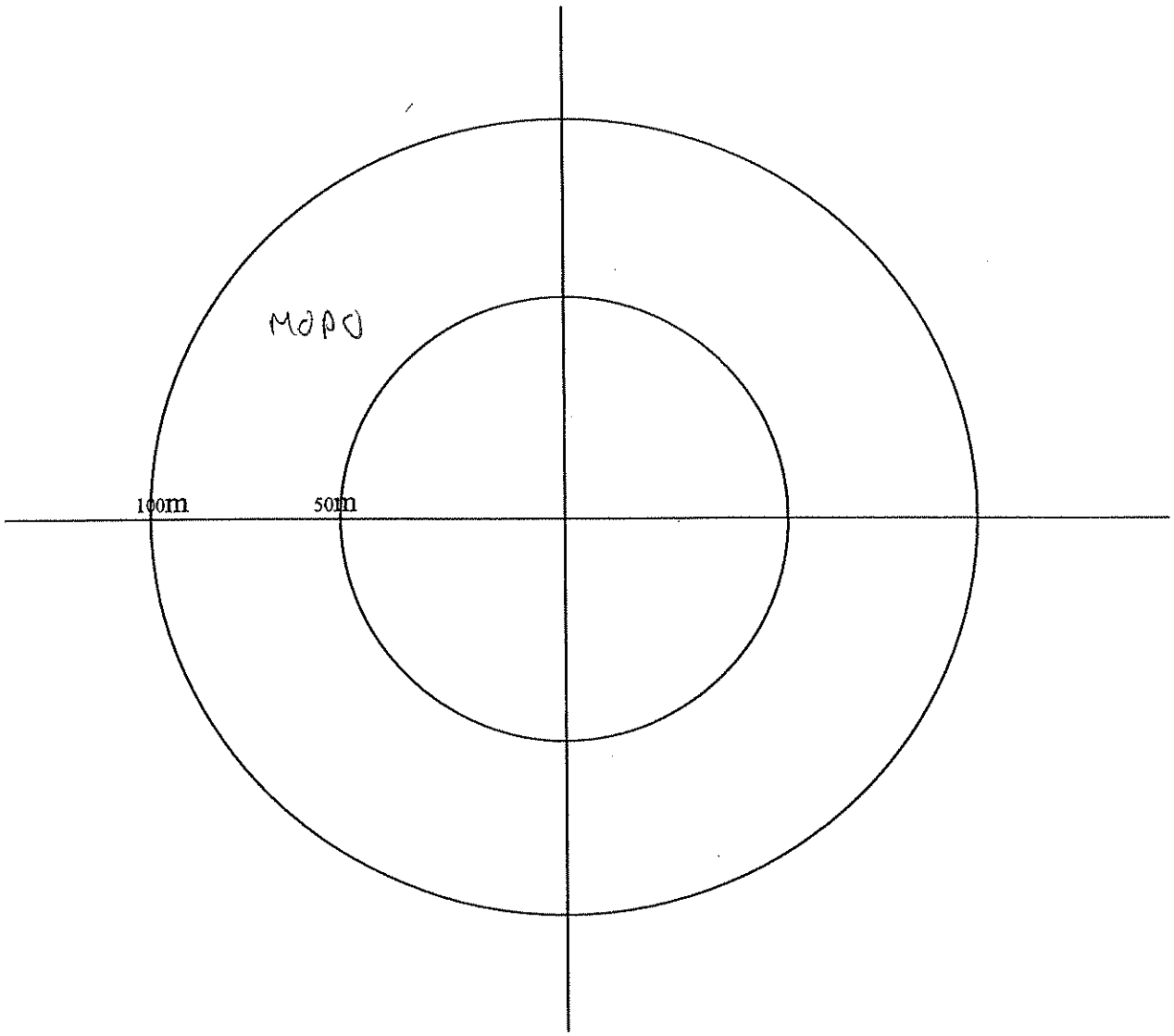
1 - BTH

2 - close to TH

3 - V BS

4 - WA BS

Outside/Flythru
MOPO
AMCR



Point Count Data Form

Observer: 5km	Site: GES	Date: 07/07/08
Station ID: PF15	Visit #: 1	Start Time (HH:MM): 12:03
Beaufort Wind Scale: 2	Cloud Cover (%): 100	Temperature (°C): — 1
Precipitation: trace	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

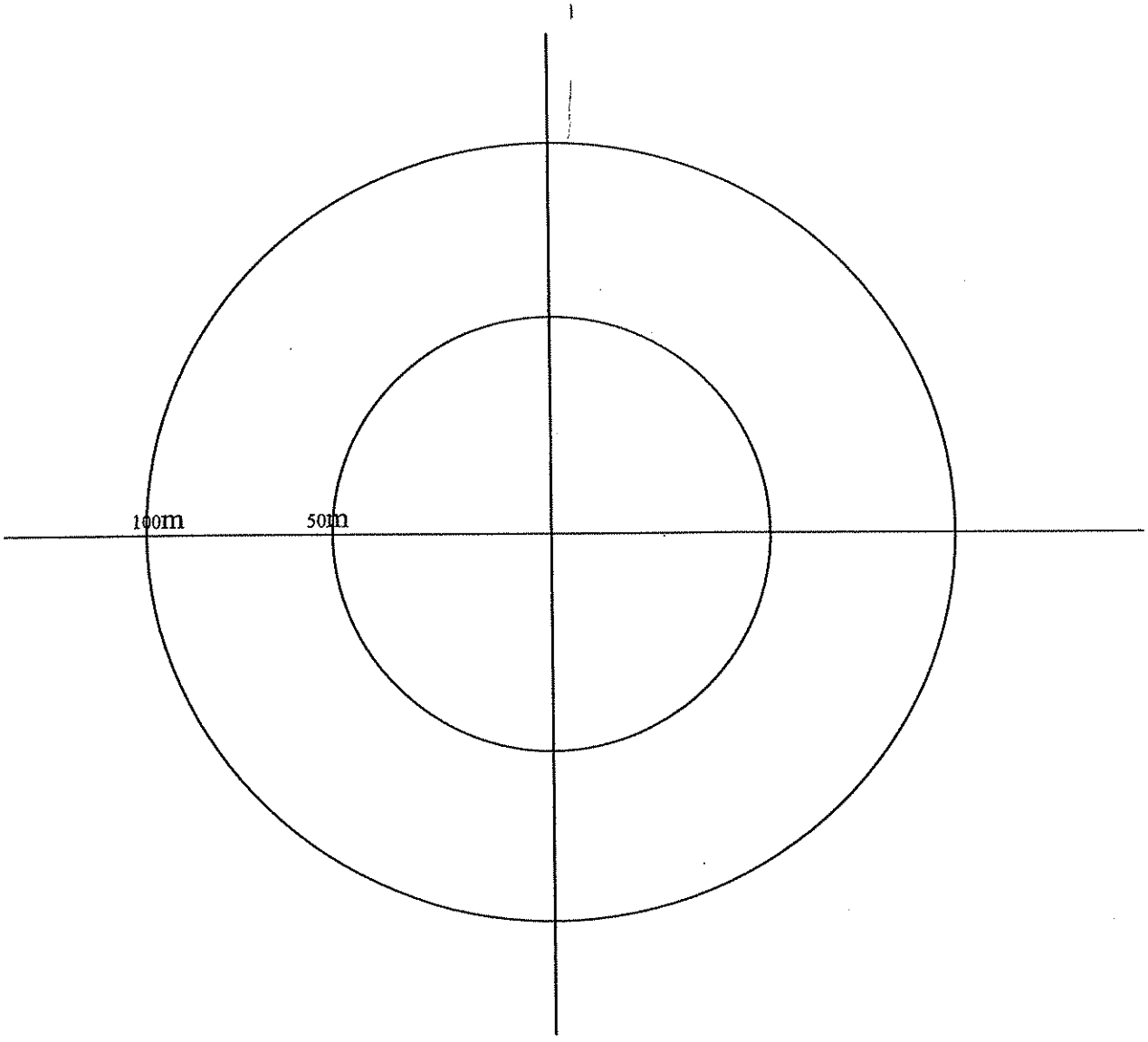
1 - BTH

2 - close to TH

3 - UBS

4 - WABS

Outside/Flythru
AMCR
HOLA



Point Count Data Form

Observer: SKM	Site: GES	Date: 02/07/08
Station ID: RF17	Visit #: V1	Start Time (HH:MM): 11:39
Beaufort Wind Scale: 2	Cloud Cover (%): 100	Temperature (°C): -1
Precipitation: trace	Visibility: good	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL + RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

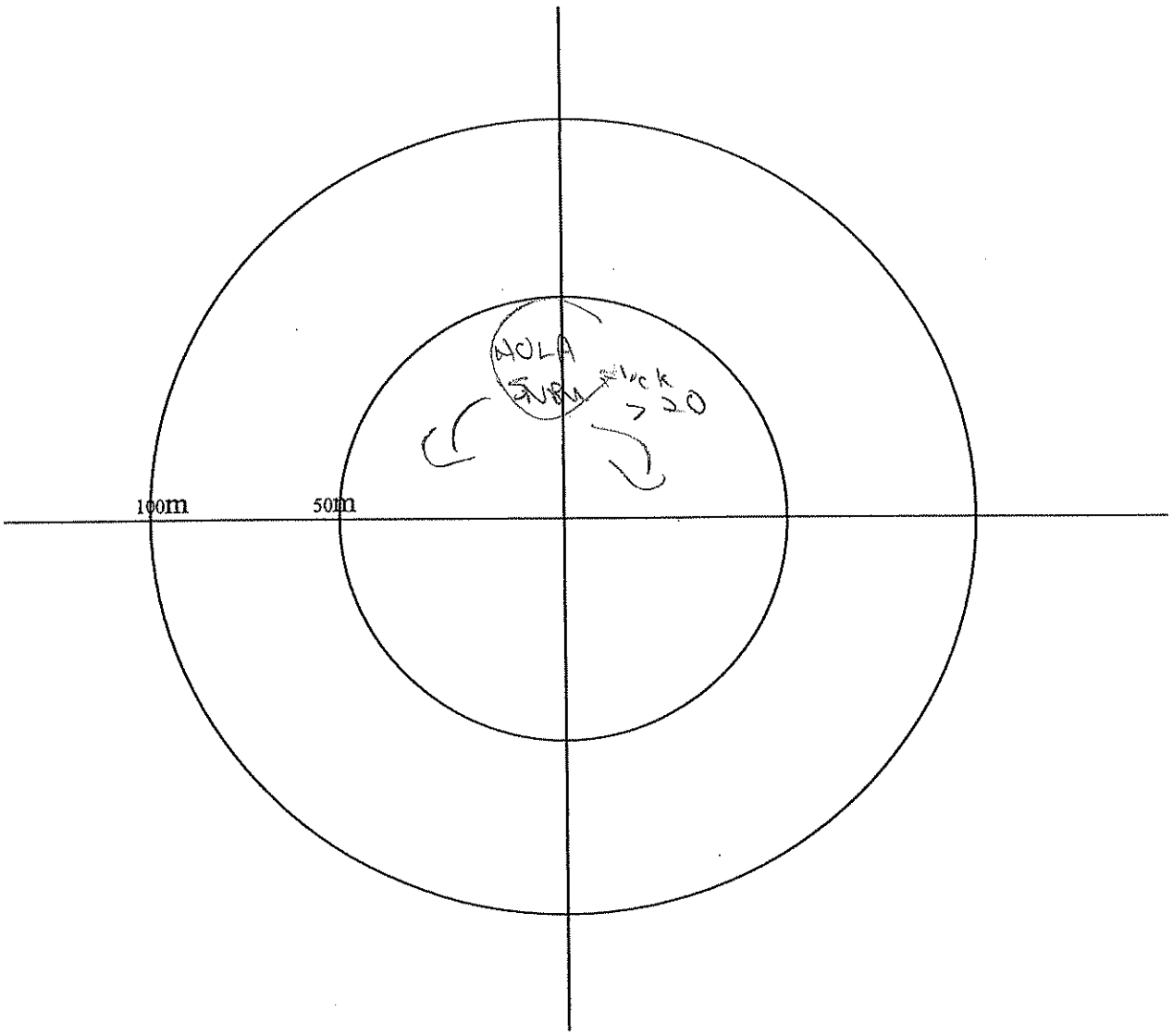
1 - BTH

2 - close to TH

3 - V BS

4 - WABS

Outside/Flythru
AMCR 2



Point Count Data Form

Observer: Skn	Site: GES	Date: 02/07/08
Station ID: FF19	Visit #: 4	Start Time (HH:MM): 12:48
Beaufort Wind Scale: 2	Cloud Cover (%): 100	Temperature (°C): -2
Precipitation: —	Visibility: good	
Remarks:		

Aerial Foragers	
Species	Tally

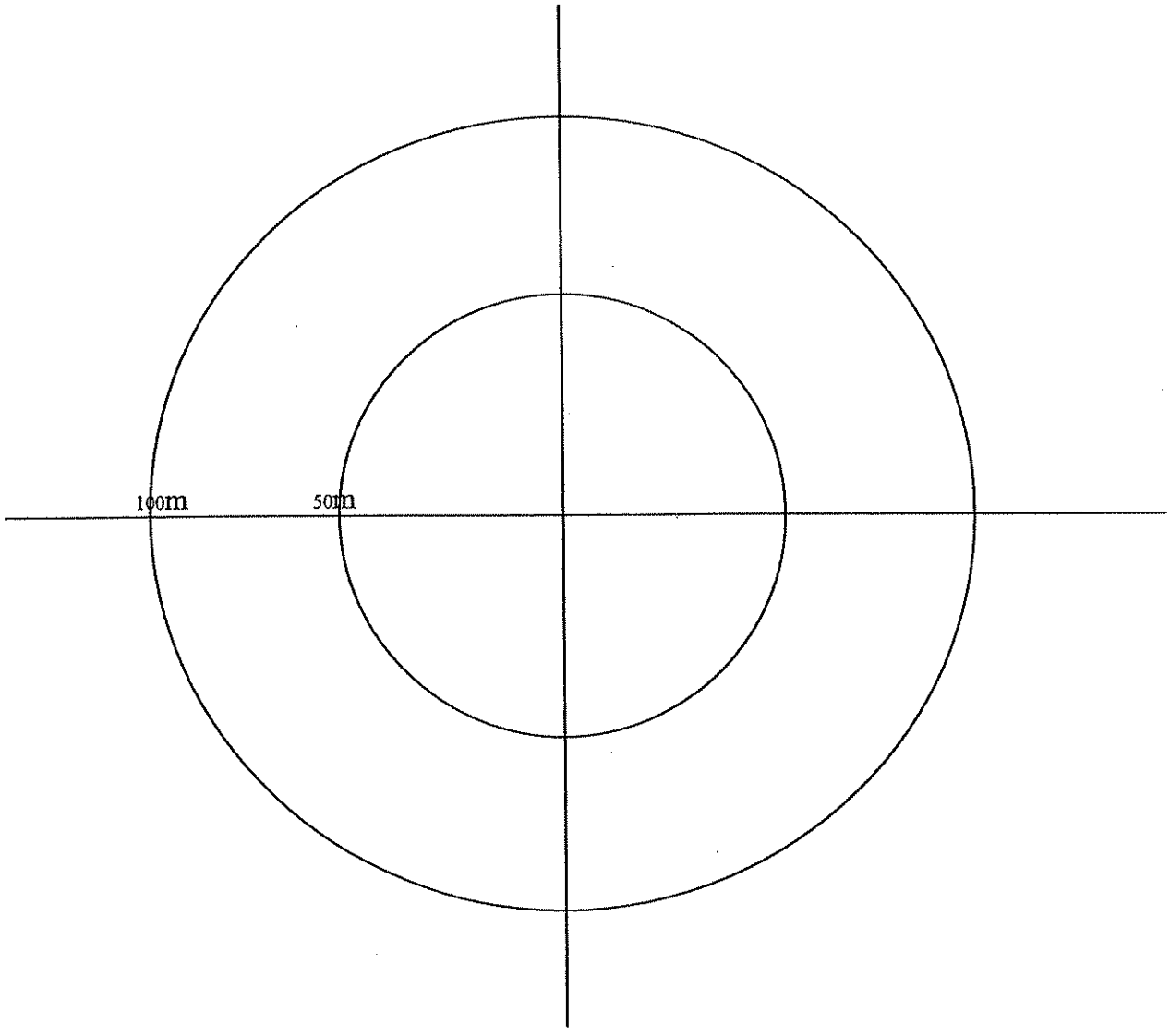
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - UBS
4 - WABS

Outside/Flythru
AMCR
EUST x50
SWBU



Point Count Data Form

Observer: SKM	Site: GES	Date: 02/07/08
Station ID: FP20	Visit #: V1	Start Time (HH:MM): 09:45
Beaufort Wind Scale: 2	Cloud Cover (%): 100	Temperature (°C): -2
Precipitation: —	Visibility: good	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ↔ RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

1 - BTH

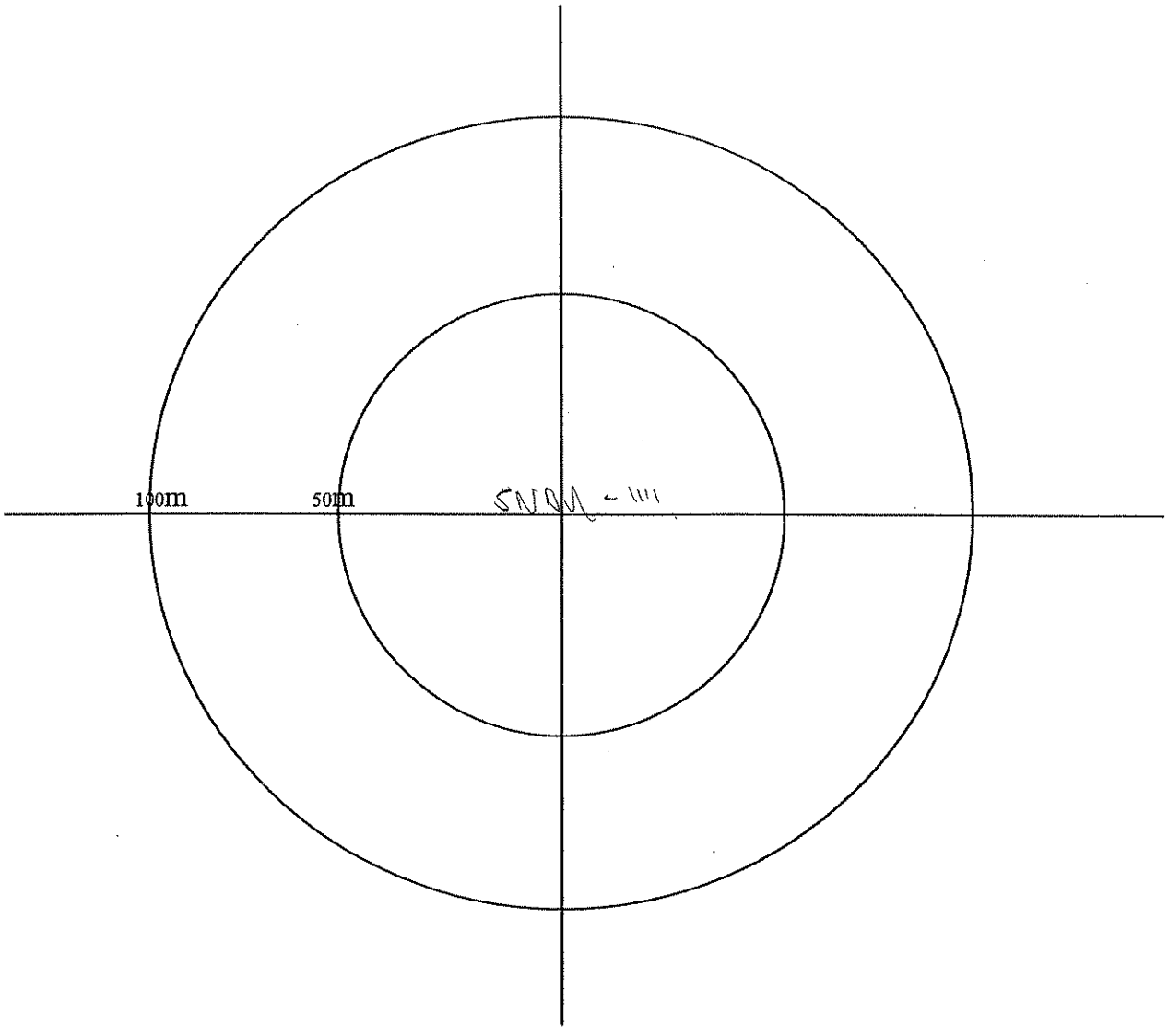
2 - Close to TH

3 - V BS

4 - WA BS

Outside/Flythru
AMCR IIII
MODO ~~~ ~20

AMKE



Point Count Data Form

Observer: SKM	Site: CGS	Date: 02/07/08
Station ID: OFF 2-1	Visit #: V1	Start Time (HH:MM): 09:54
Beaufort Wind Scale: 2	Cloud Cover (%): 100	Temperature (°C): -2
Precipitation: ~	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

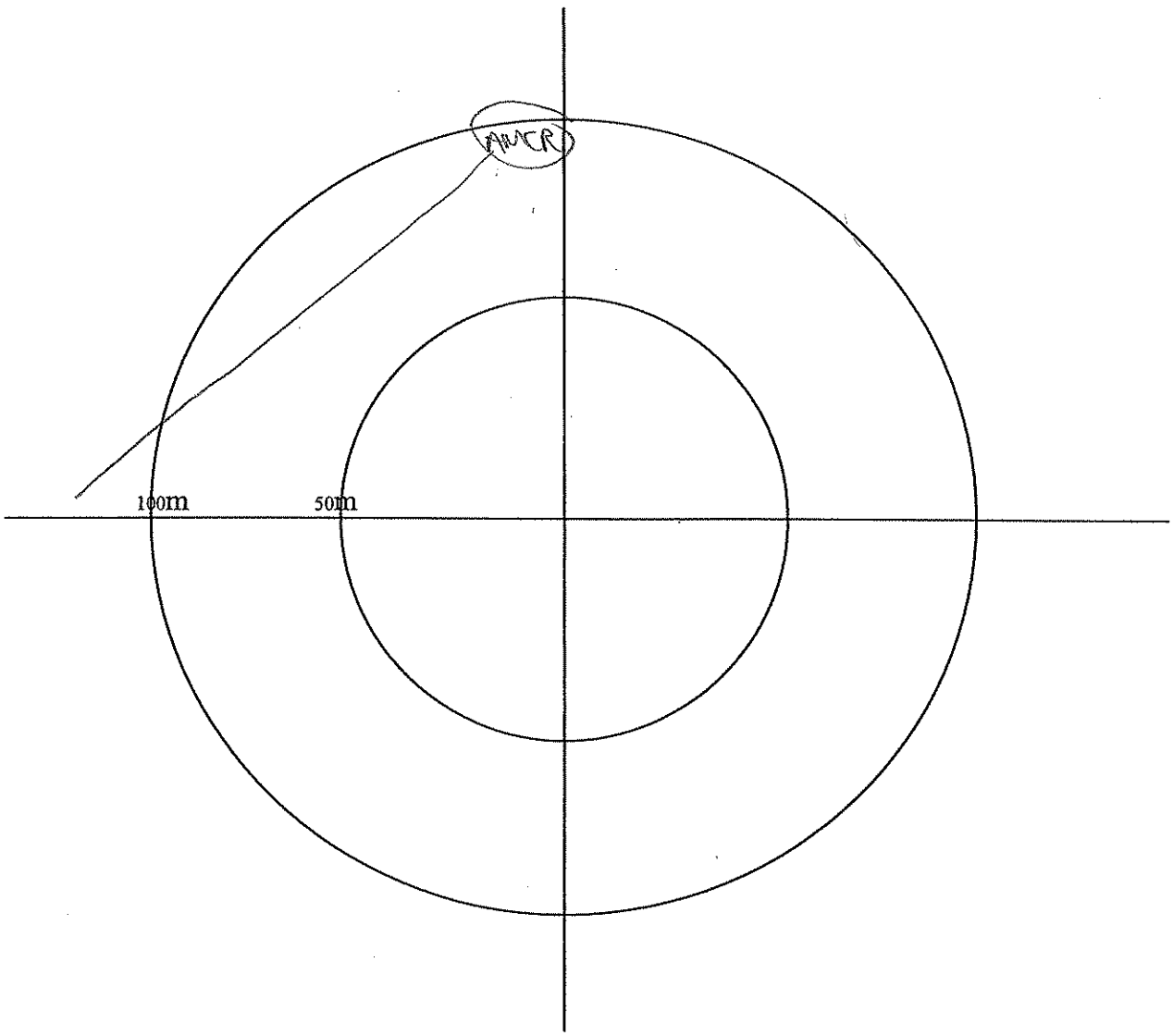
- RWBL — Single bird, singing/calling
- RWBL ⟷ RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WABS

Outside/Flythru
AMCR
SNBU

5



Point Count Data Form

Observer: SJM	Site: GES	Date: 02/28
Station ID: FF1	Visit #: W2	Start Time (HH:MM): 09:29
Beaufort Wind Scale: 3	Cloud Cover (%): 0	Temperature (°C): -12
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

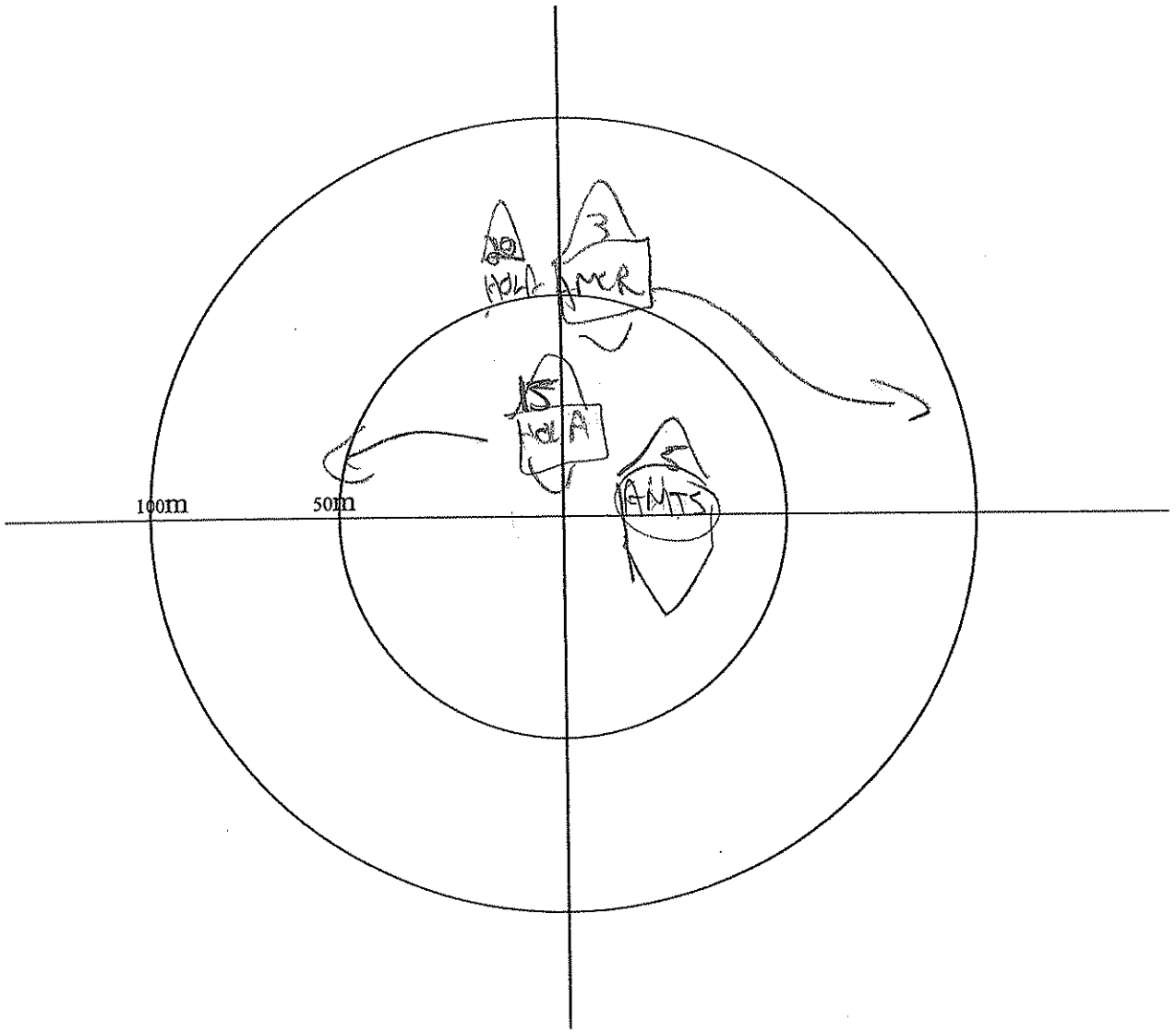
Symbols

- (WBL) Single bird, singing/calling
- (WBL) + (WBL) Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WABS

Outside/Flythru
HOLA -10



Point Count Data Form

Observer: Skm	Site: GES	Date: 02/29
Station ID: FF 2	Visit #: w/ 2	Start Time (HH:MM): 09:41
Beaufort Wind Scale: 3	Cloud Cover (%): 0	Temperature (°C): -13
Precipitation: —	Visibility: clear	
Remarks: Heard Parks		

Aerial Foragers	
Species	Tally

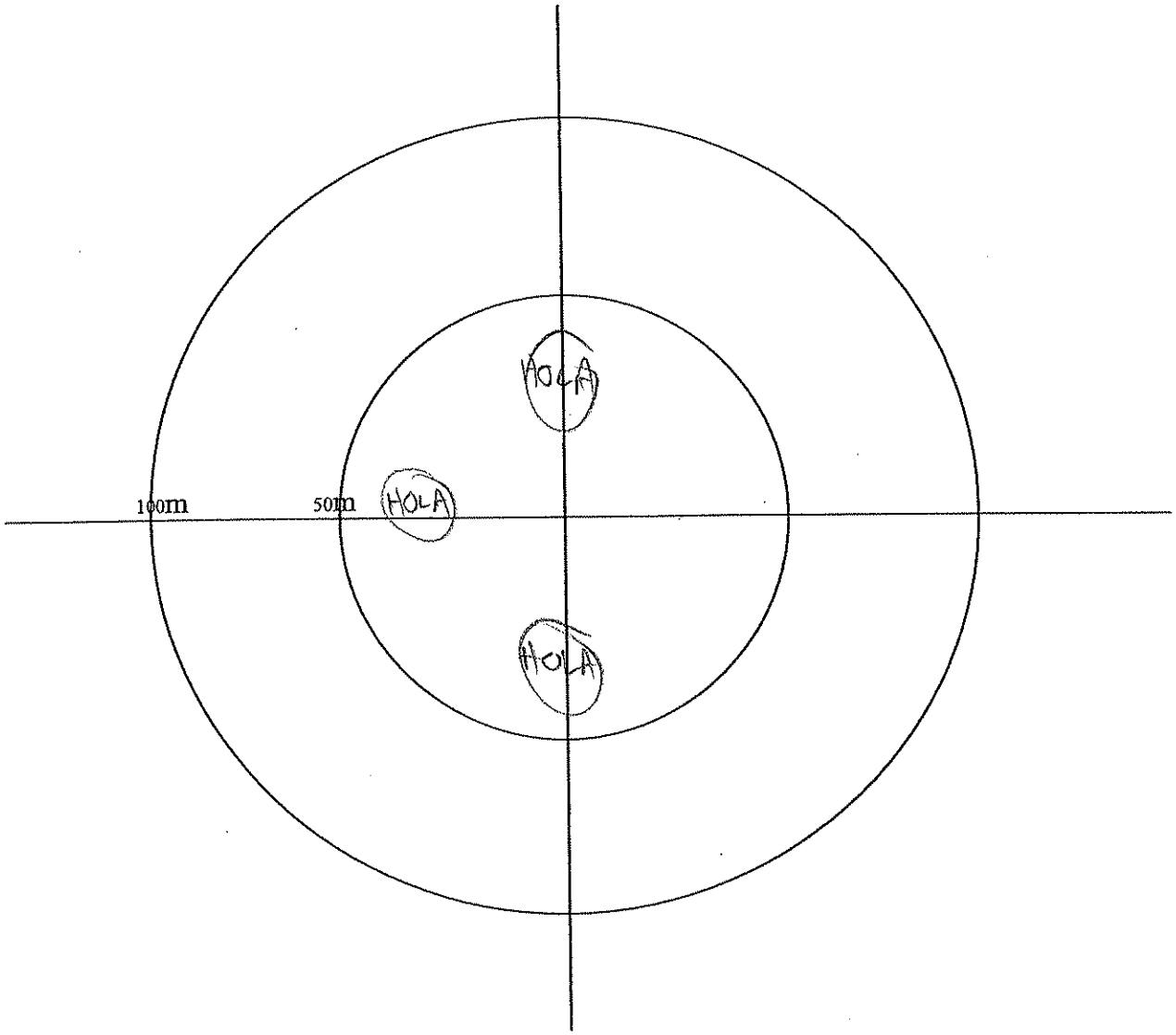
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru
HOLA



Point Count Data Form

Observer: SKM	Site: GES	Date: 02/28
Station ID: FF3	Visit #: W2	Start Time (HH:MM): 09:18
Beaufort Wind Scale: 2	Cloud Cover (%): 5	Temperature (°C): -12
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

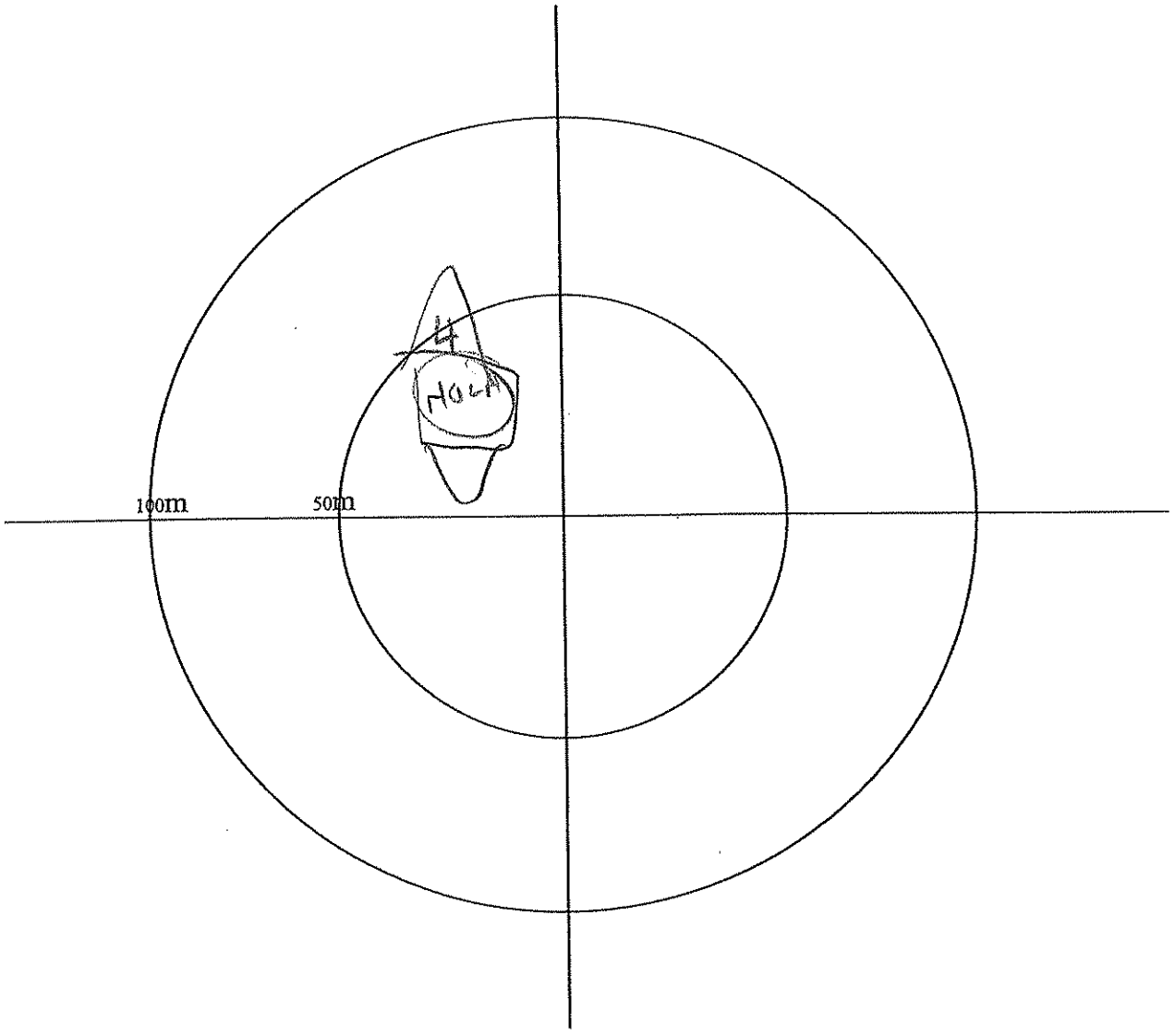
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - W BS
4 - WA BS

Outside/Flythru
AMGO
HOLA



Point Count Data Form

Observer: Skom	Site: GES	Date: 02/28
Station ID: RF4	Visit #: W7	Start Time (HH:MM): 0953
Beaufort Wind Scale: 3	Cloud Cover (%): 0	Temperature (°C): ~ 1)
Precipitation: —	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

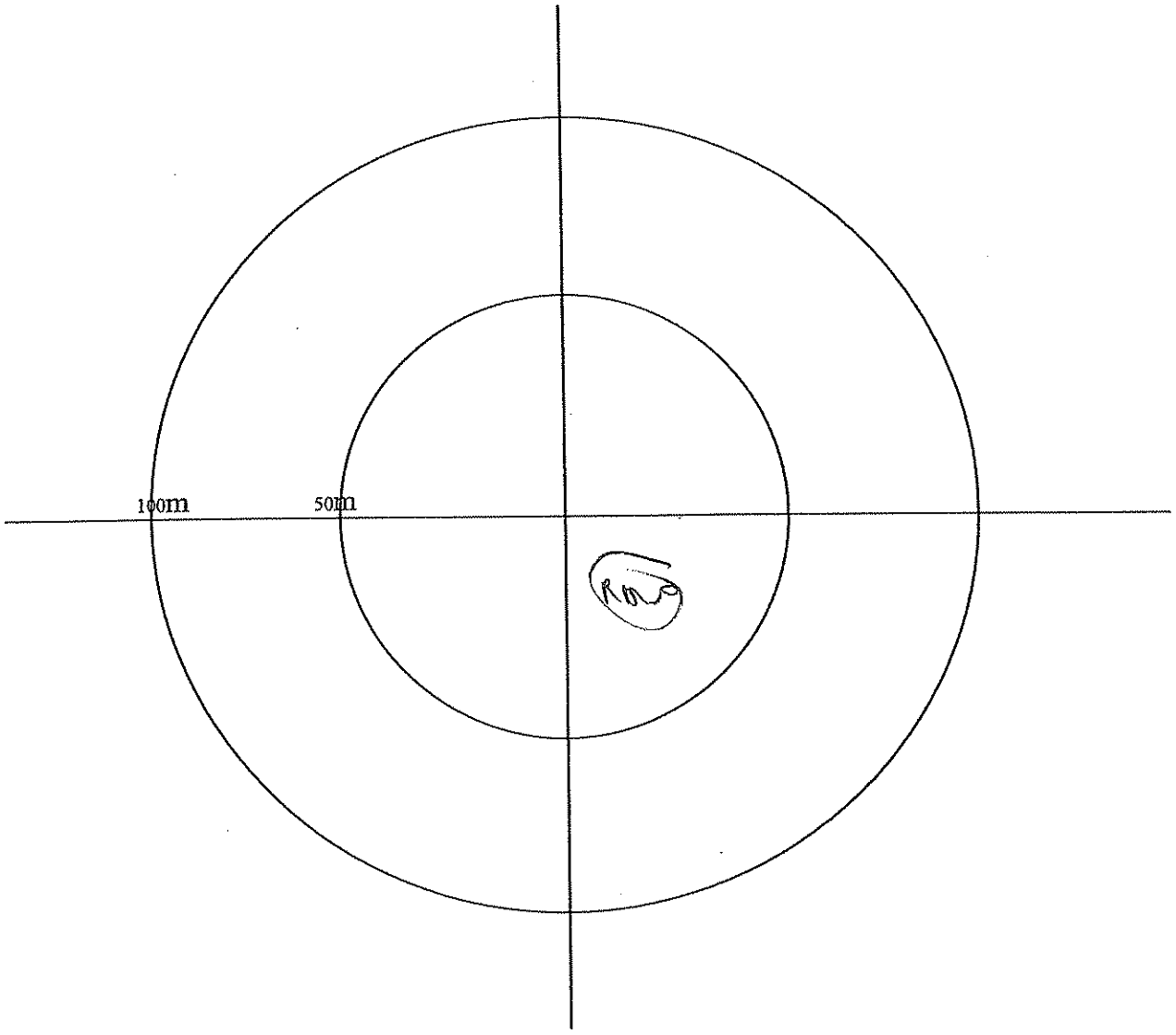
1 - BTH

2 - Close to TH

3 - U BS

4 - WA BS

Outside/Flythru



Point Count Data Form

Observer: SKM	Site: GES	Date: 02/28
Station ID: AFS N	Visit #: V2	Start Time (HH:MM): 11:46
Beaufort Wind Scale: 3	Cloud Cover (%): 0	Temperature (°C): -10
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

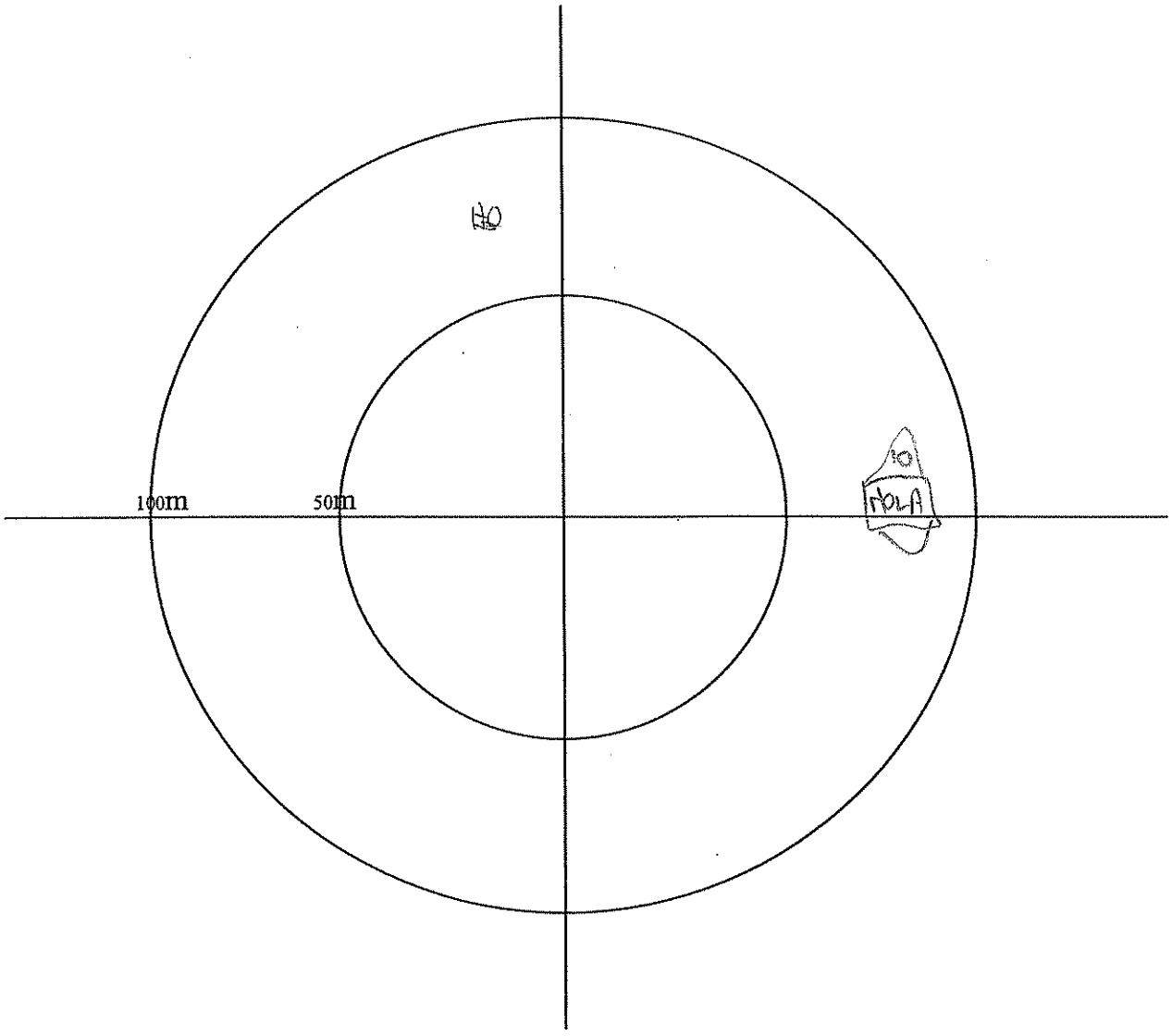
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru
AMCR



Point Count Data Form

Observer: SRM	Site: GES	Date: 6/28
Station ID: FF6	Visit #: V2	Start Time (HH:MM): 11:57
Beaufort Wind Scale: 2	Cloud Cover (%): 0	Temperature (°C): ~16
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL + RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

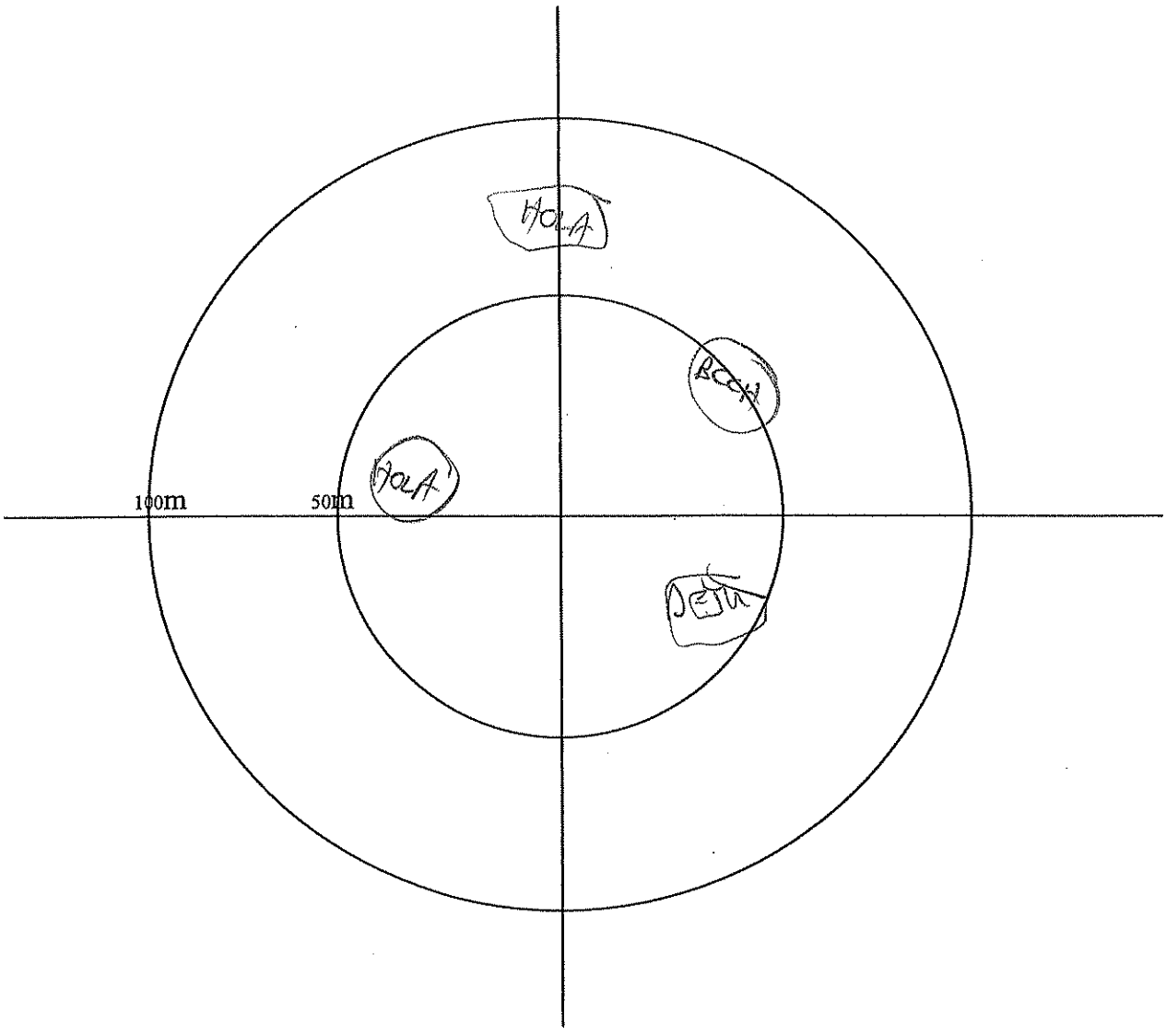
1 - BTH

2 - close to TH

3 - U BS

4 - WABS

Outside/Flythru
MODO-17, Y



Point Count Data Form

Observer: SHM	Site: GCS	Date: 0205
Station ID: PP7	Visit #: V1	Start Time (HH:MM): 0907
Beaufort Wind Scale: 1	Cloud Cover (%): 5	Temperature (°C): -12
Precipitation: —	Visibility: clear	
Remarks: Nearby heavy equipment operating ~250m N		

Aerial Foragers	
Species	Tally

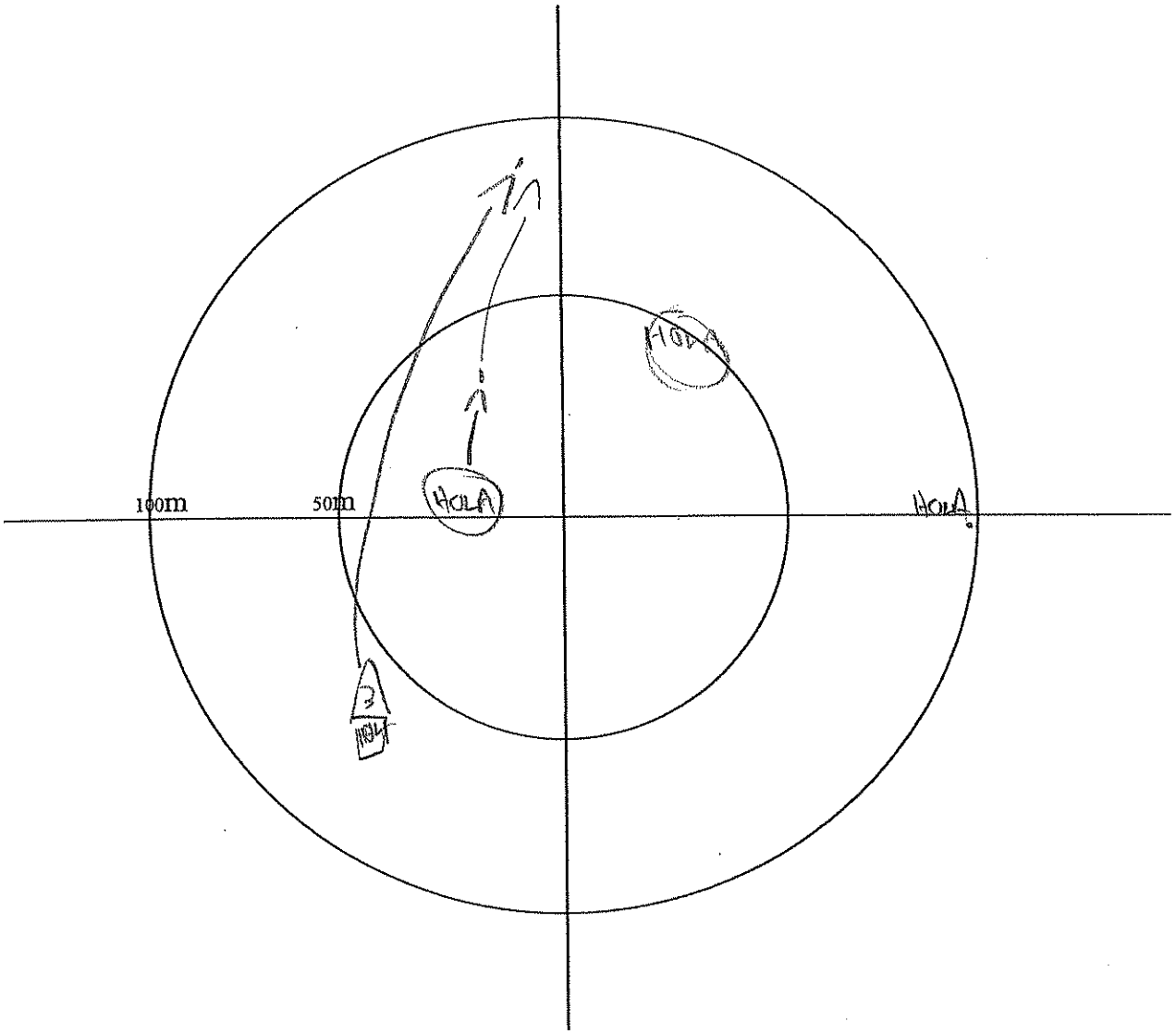
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WABS

Outside/Flythru
SNBY 3
AMCR -2



Point Count Data Form

Observer: SMM	Site: GCS	Date: 02/28
Station ID: FR8	Visit #: V1	Start Time (HH:MM): 10:05
Beaufort Wind Scale: 1	Cloud Cover (%): 0	Temperature (°C): -12
Precipitation: —	Visibility: clear	
Remarks: sparrows in hay for horses.		

Aerial Foragers	
Species	Tally

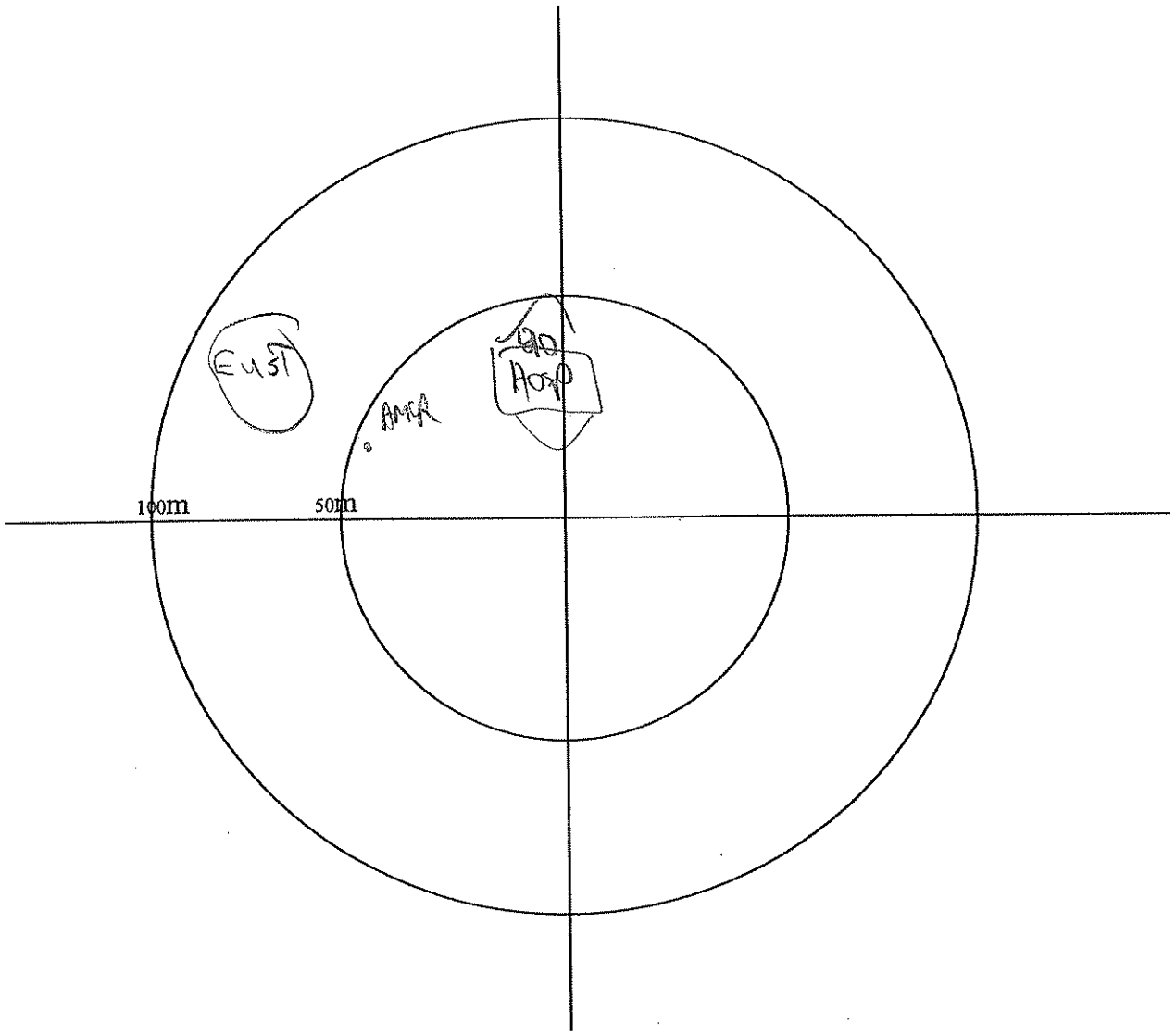
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - V BS
4 - WABS

Outside/Flythru
NOA-2



Point Count Data Form

Observer: Skyler	Site: GES	Date: 10 02/15
Station ID: FF 09	Visit #: V2	Start Time (HH:MM): 1053
Beaufort Wind Scale: 2	Cloud Cover (%): 0	Temperature (°C): ~10
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL → ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

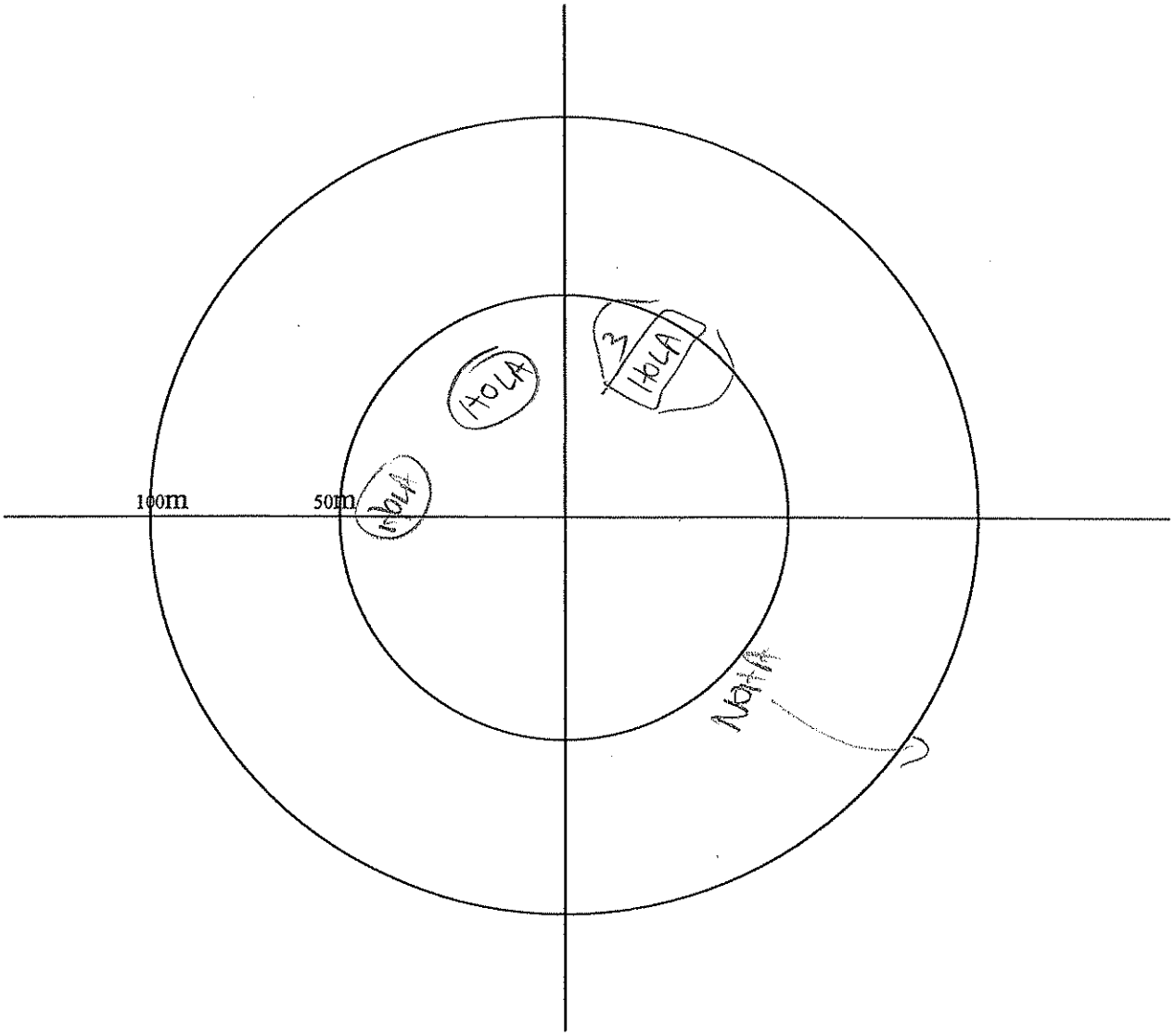
1 - BTH

2 - close to TH

3 - V BS

4 - WABS

Outside/Flythru
HOLA
NOPA



Point Count Data Form

Observer: Skm	Site: GES	Date: 02/28
Station ID: PR10	Visit #: 2	Start Time (HH:MM): 10:42
Beaufort Wind Scale: 2	Cloud Cover (%): 0	Temperature (°C): -10
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

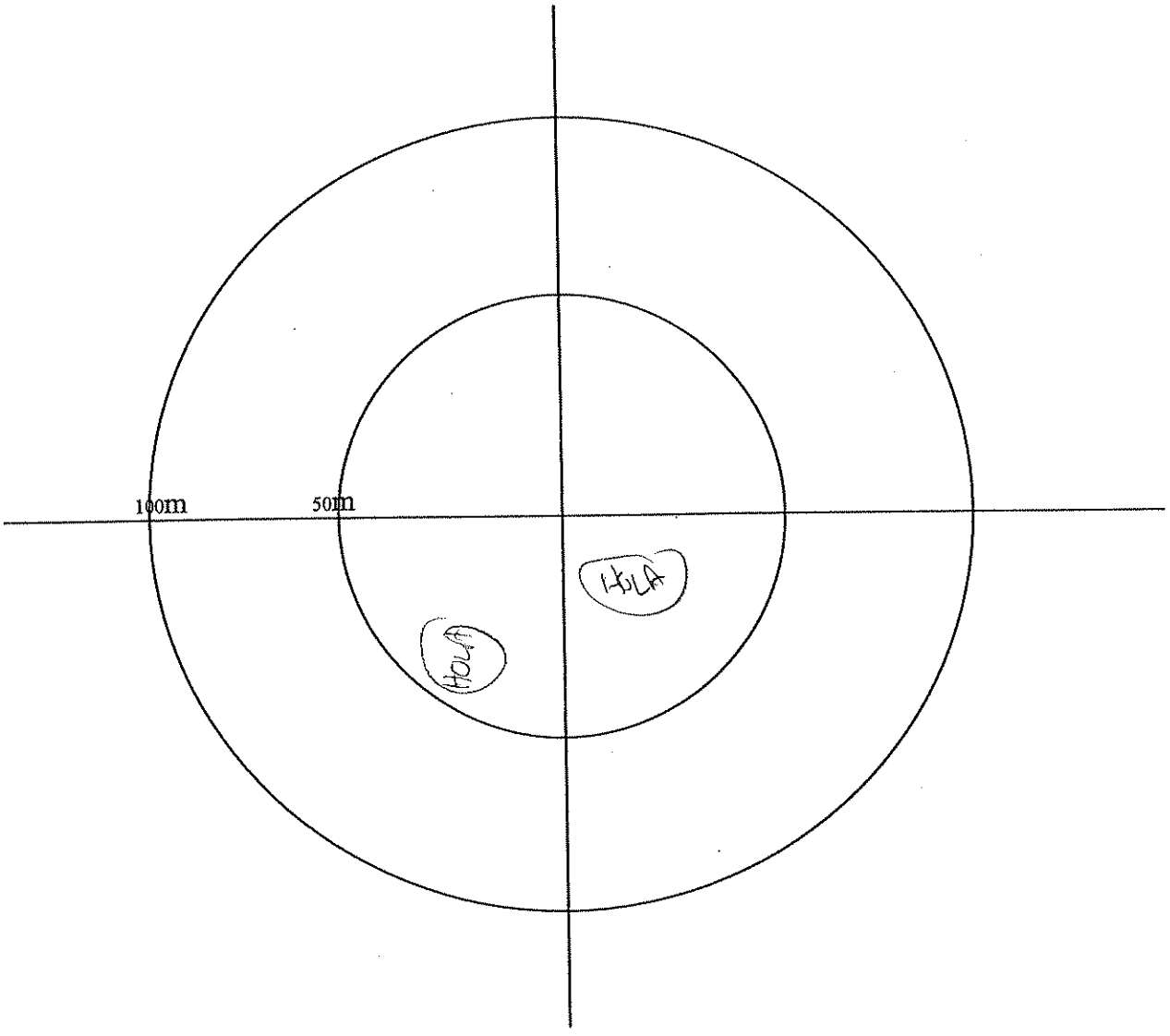
Symbols

- (WBL) Single bird, singing/calling
- (RWBL) ← (RWBL) Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - W BS
4 - WA BS

Outside/Flythru
AMCR



Point Count Data Form

Observer: Skm	Site: GC5	Date:
Station ID: FF113	Visit #: W2	Start Time (HH:MM): 10:35
Beaufort Wind Scale: 3	Cloud Cover (%): 0	Temperature (°C): -12
Precipitation: —	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

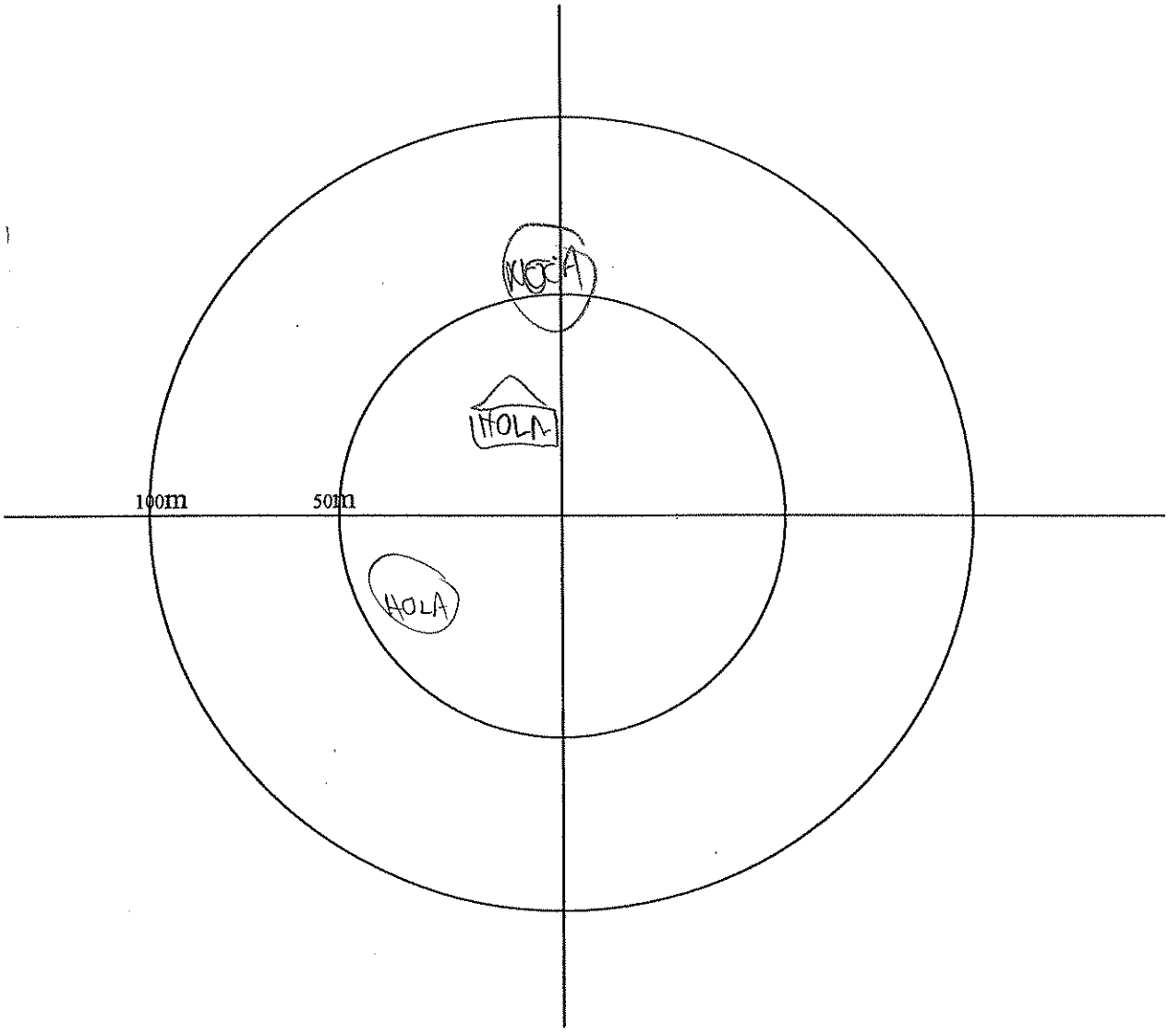
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - W BS
4 - WA BS

Outside/Flythru



Point Count Data Form

Observer: SKM	Site: GES	Date: 02/28
Station ID: FF9	Visit #: W2	Start Time (HH:MM): 10:17
Beaufort Wind Scale: 2	Cloud Cover (%): 0	Temperature (°C): ~12
Precipitation: —	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

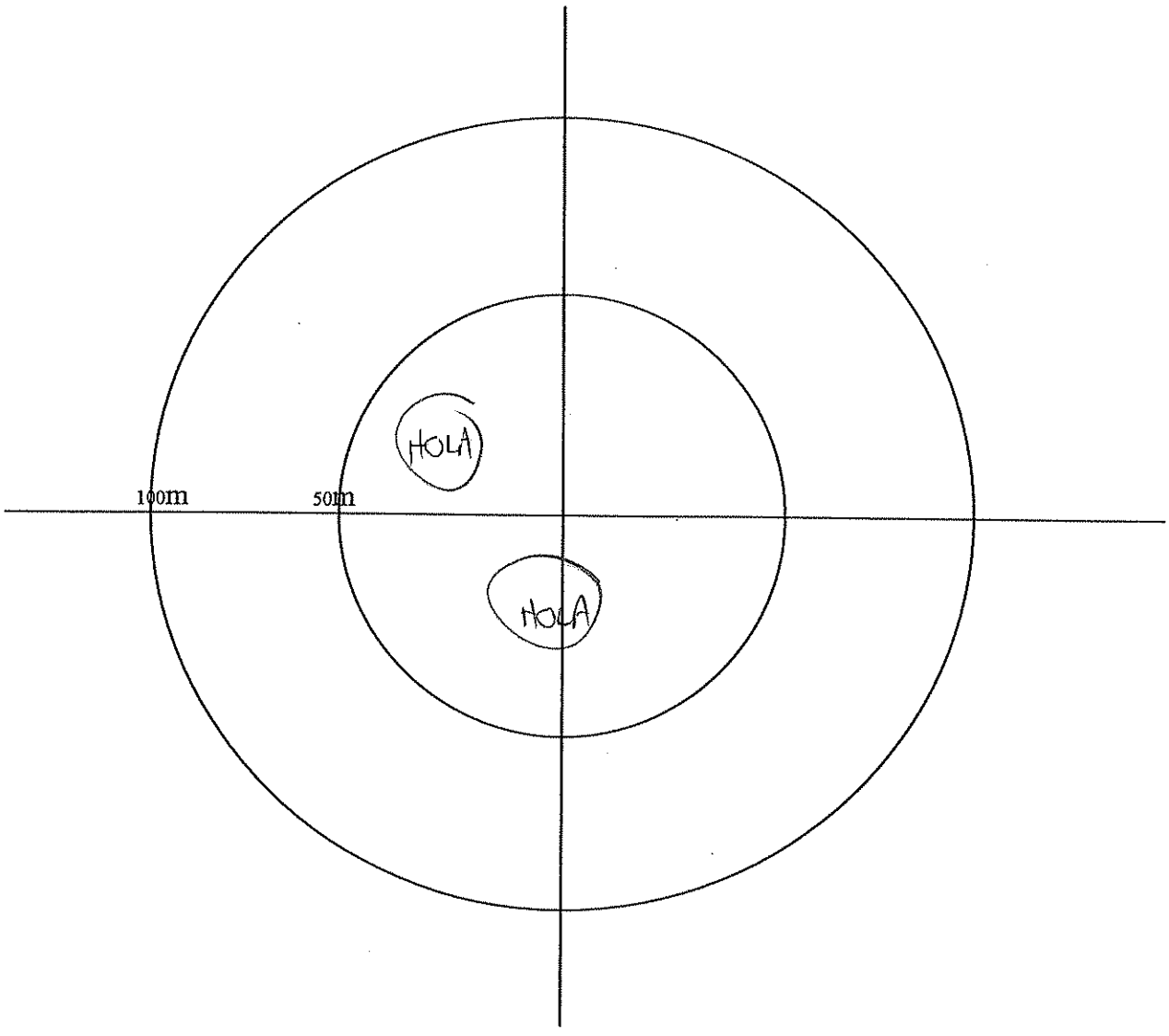
Symbols

- RWBL — Single bird, singing/calling
- RWBL ↔ RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - W BS
4 - WA BS

Outside/Flythru



Point Count Data Form

Observer: SKM	Site: GES	Date: 6/28
Station ID: FAB	Visit #: V2	Start Time (HH:MM): 08:43
Beaufort Wind Scale: 2	Cloud Cover (%): 20	Temperature (°C): -13
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

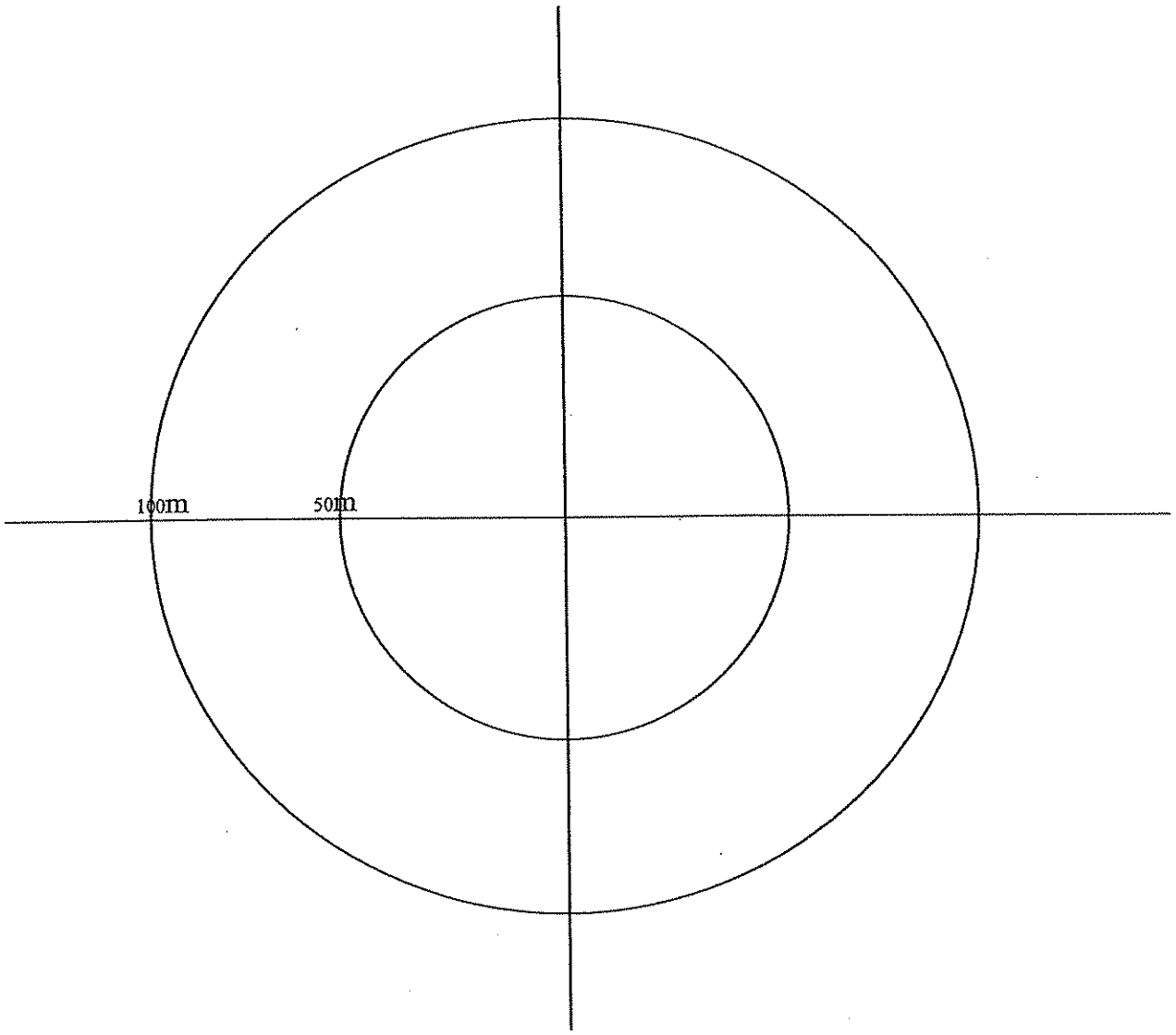
1 - BTH

2 - Close to TH

3 - V BS

4 - WA BS

Outside/Flythru
AMCR 3
JNBA
NOCA



Point Count Data Form

Observer: SKM	Site: GCS	Date:
Station ID: RP14	Visit #: V2	Start Time (HH:MM): 08:31
Beaufort Wind Scale: 3	Cloud Cover (%): 30	Temperature (°C): -13
Precipitation: —	Visibility: clear	
Remarks: crusty snow ~ cm thick		

Aerial Foragers	
Species	Tally

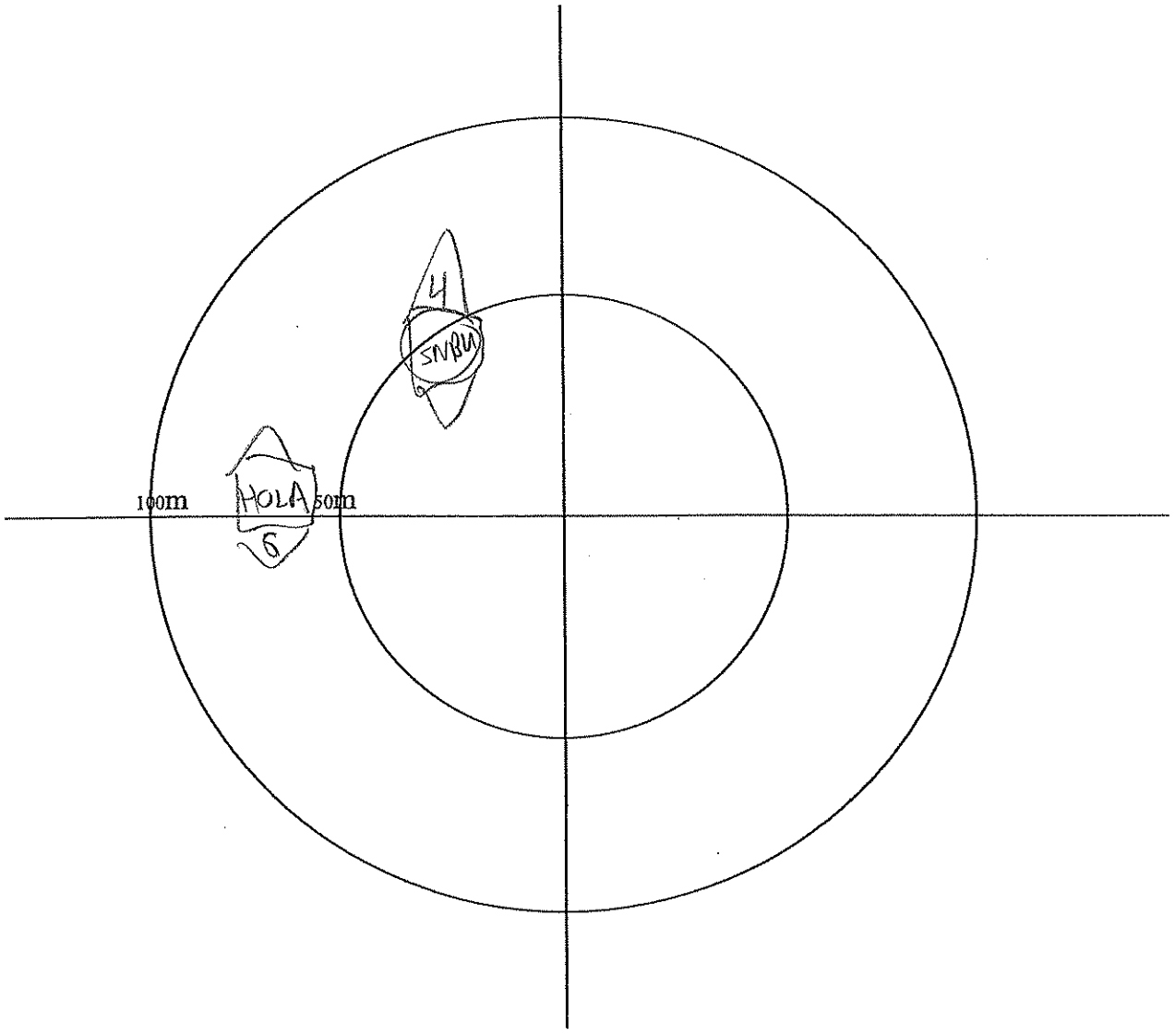
Symbols

- RWBL — Single bird, singing/calling
- RWBL RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WA BS

Outside/Flythru
HOLA



Point Count Data Form

Observer: SKF	Site: GCS	Date: 02/28
Station ID: FF13	Visit #: V2	Start Time (HH:MM): 08:20
Beaufort Wind Scale: 2	Cloud Cover (%):	Temperature (°C): -13
Precipitation: —	Visibility: clear 10	
Remarks:		

Aerial Foragers	
Species	Tally

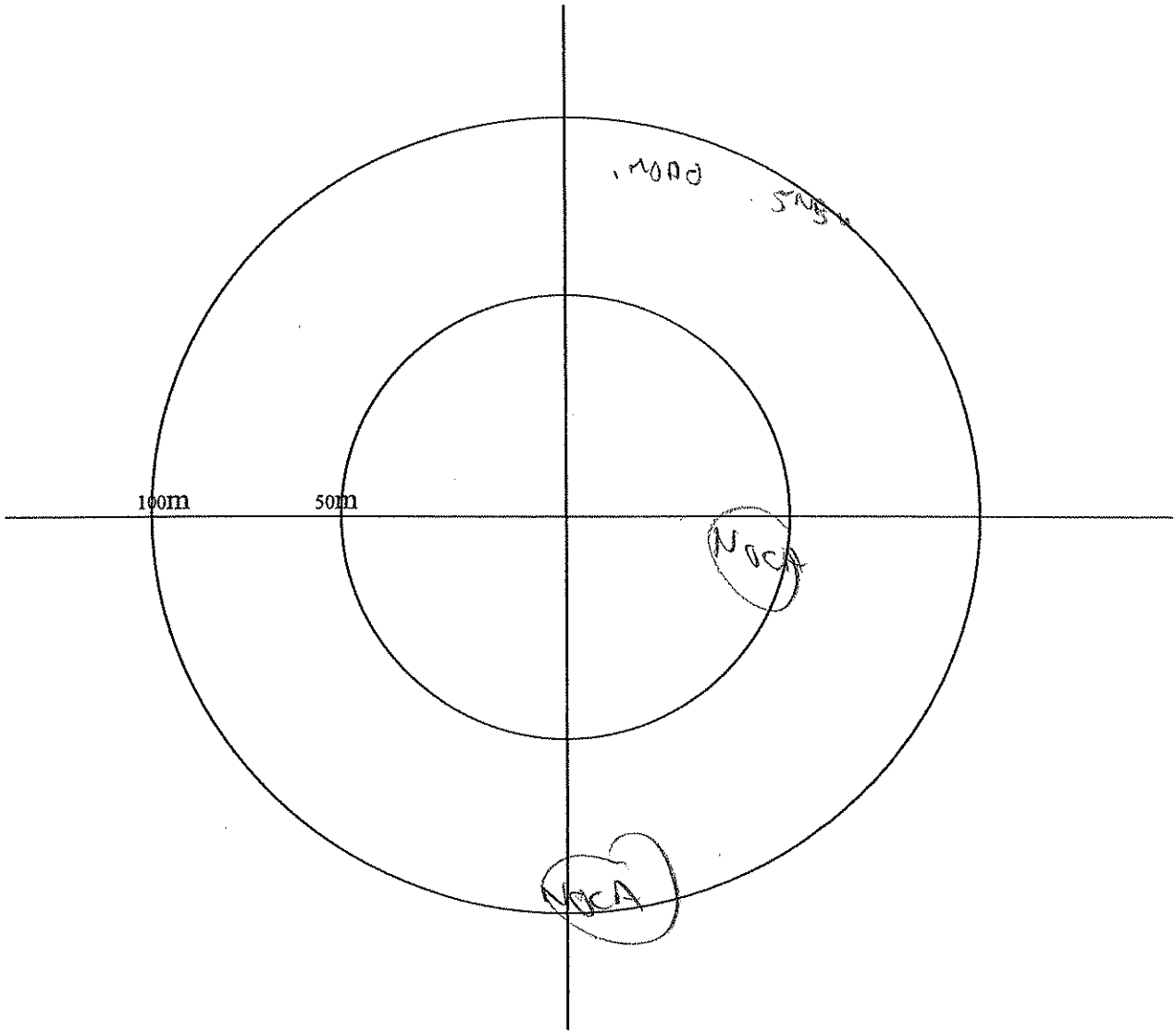
Symbols

- (RWBL) Single bird, singing/calling
- (RWBL) ← (RWBL) Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- O—→O Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WABS

Outside/Flythru



Point Count Data Form

Observer: Skan	Site: FF16 (GC)	Date:
Station ID: FF16	Visit #: W2	Start Time (HH:MM): 08:09
Beaufort Wind Scale: 2	Cloud Cover (%): 30	Temperature (°C): -13
Precipitation: —	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

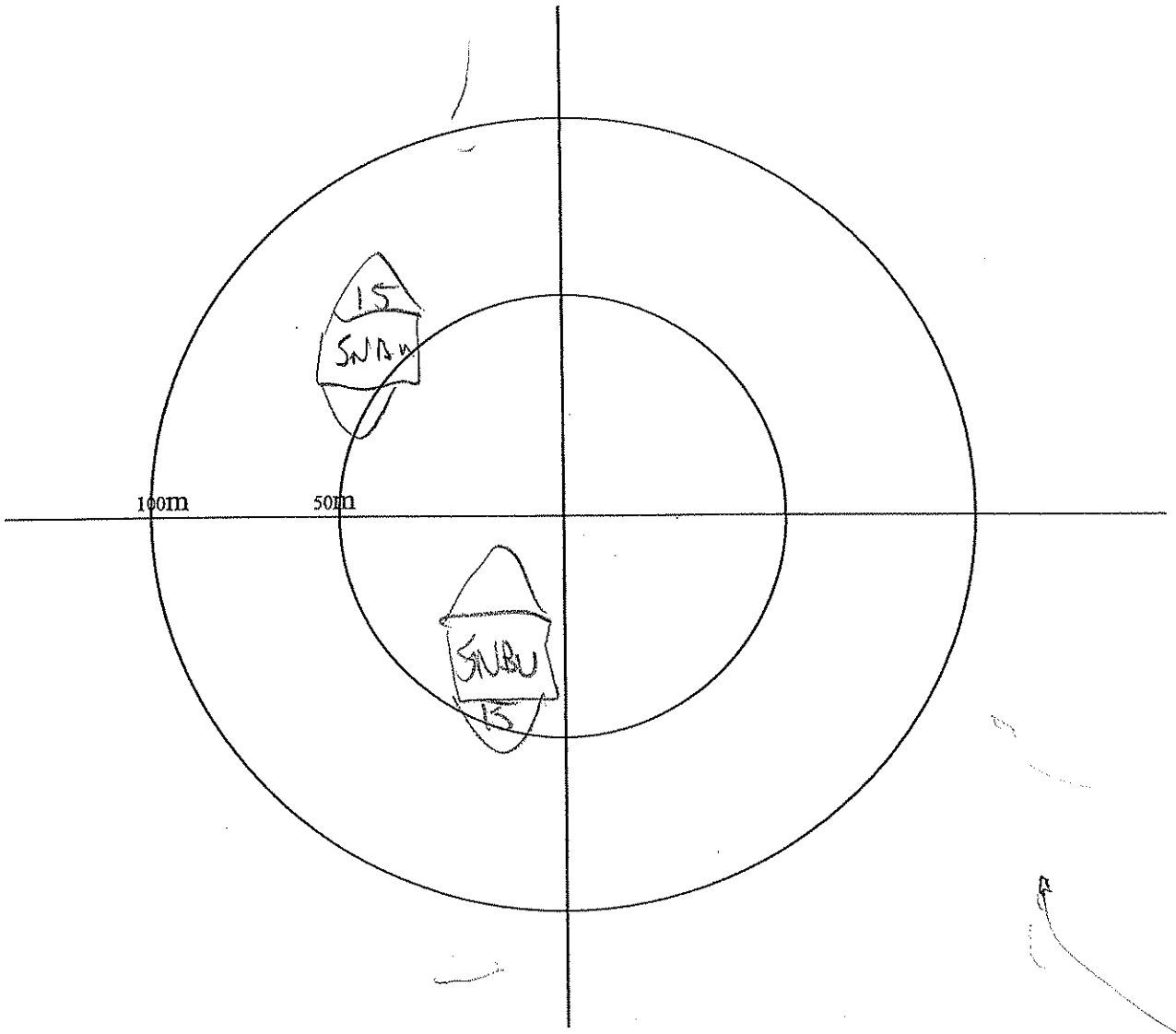
Symbols

- (WBL) Single bird, singing/calling
- (RUBL)→←(RUBL) Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - V BS
4 - WABS

Outside/Flythru
EAST -5



Point Count Data Form

Observer: SHM	Site: GES	Date: 02/28
Station ID: FFR 17	Visit #: V2	Start Time (HH:MM): 11:05
Beaufort Wind Scale: 3	Cloud Cover (%): 0	Temperature (°C): -10
Precipitation: —	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ↔ RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

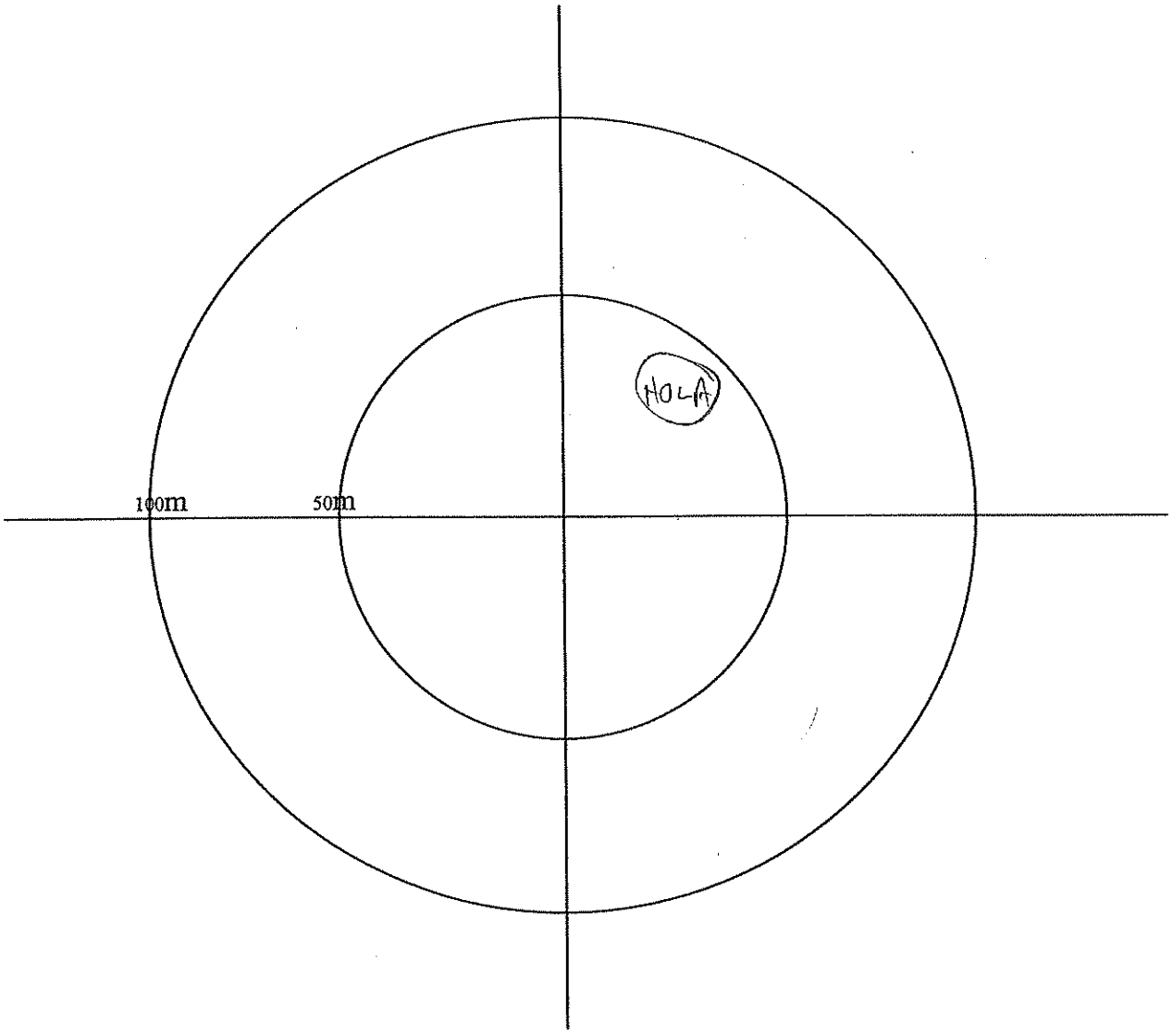
1 - BTH

2 - Close to TH

3 - V BS

4 - WABS

Outside/Flythru
HOLA-2
RBGU



Point Count Data Form

Observer: SRM	Site: GES	Date: 08/25
Station ID: FF19	Visit #: V2	Start Time (HH:MM): 08:55
Beaufort Wind Scale: 1	Cloud Cover (%): 10	Temperature (°C): <12
Precipitation: —	Visibility: clear	
Remarks: Crust of snow likely limiting abundance		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← → RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

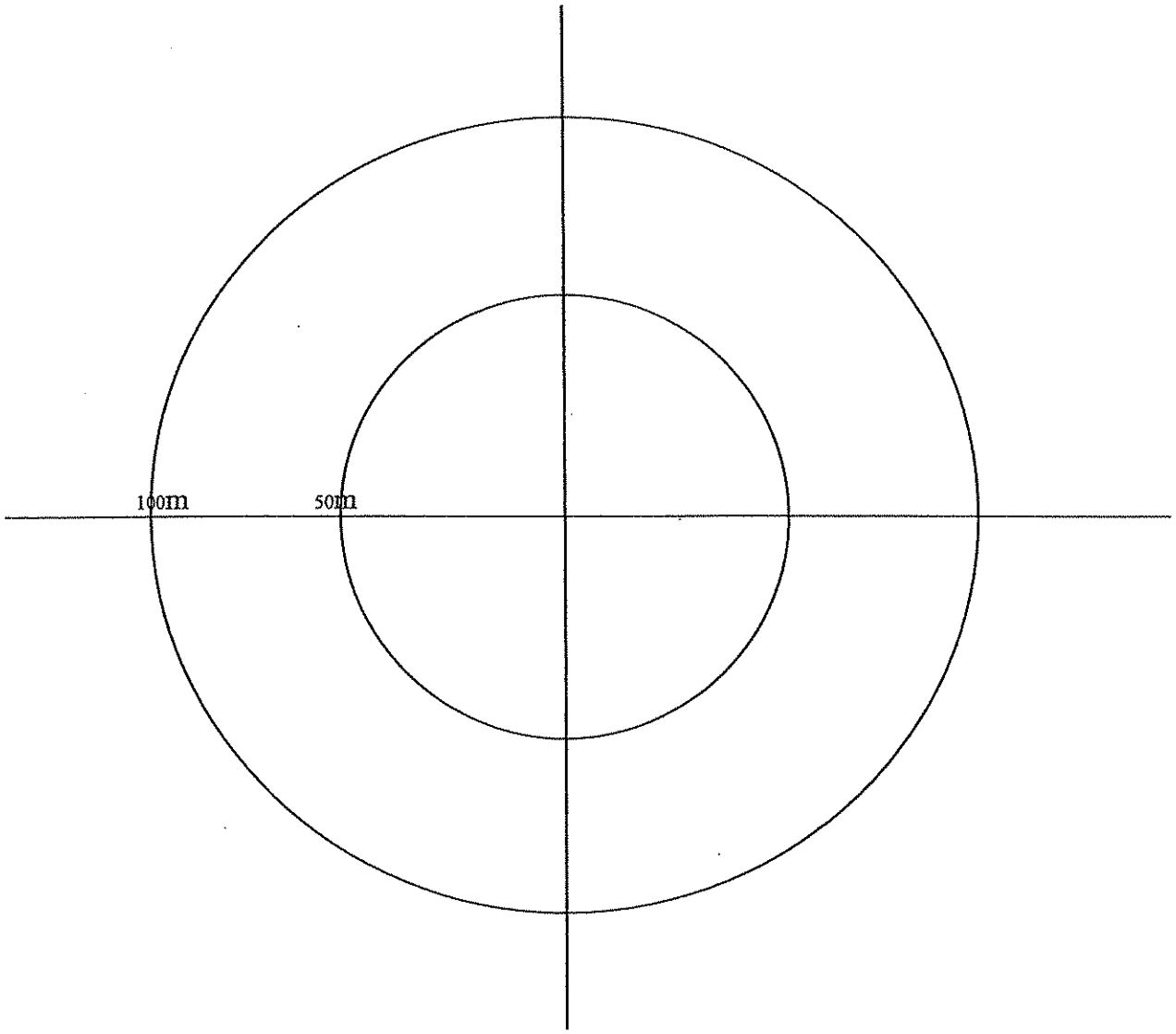
1 - BTH

2 - close to TH

3 - WBS

4 - WABS

Outside/Flythru
HOSP



Point Count Data Form

Observer: SKM	Site: GLS	Date: 07/28
Station ID: PP20	Visit #: W2	Start Time (HH:MM): 11:20
Beaufort Wind Scale: 1	Cloud Cover (%): 0	Temperature (°C): -9
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

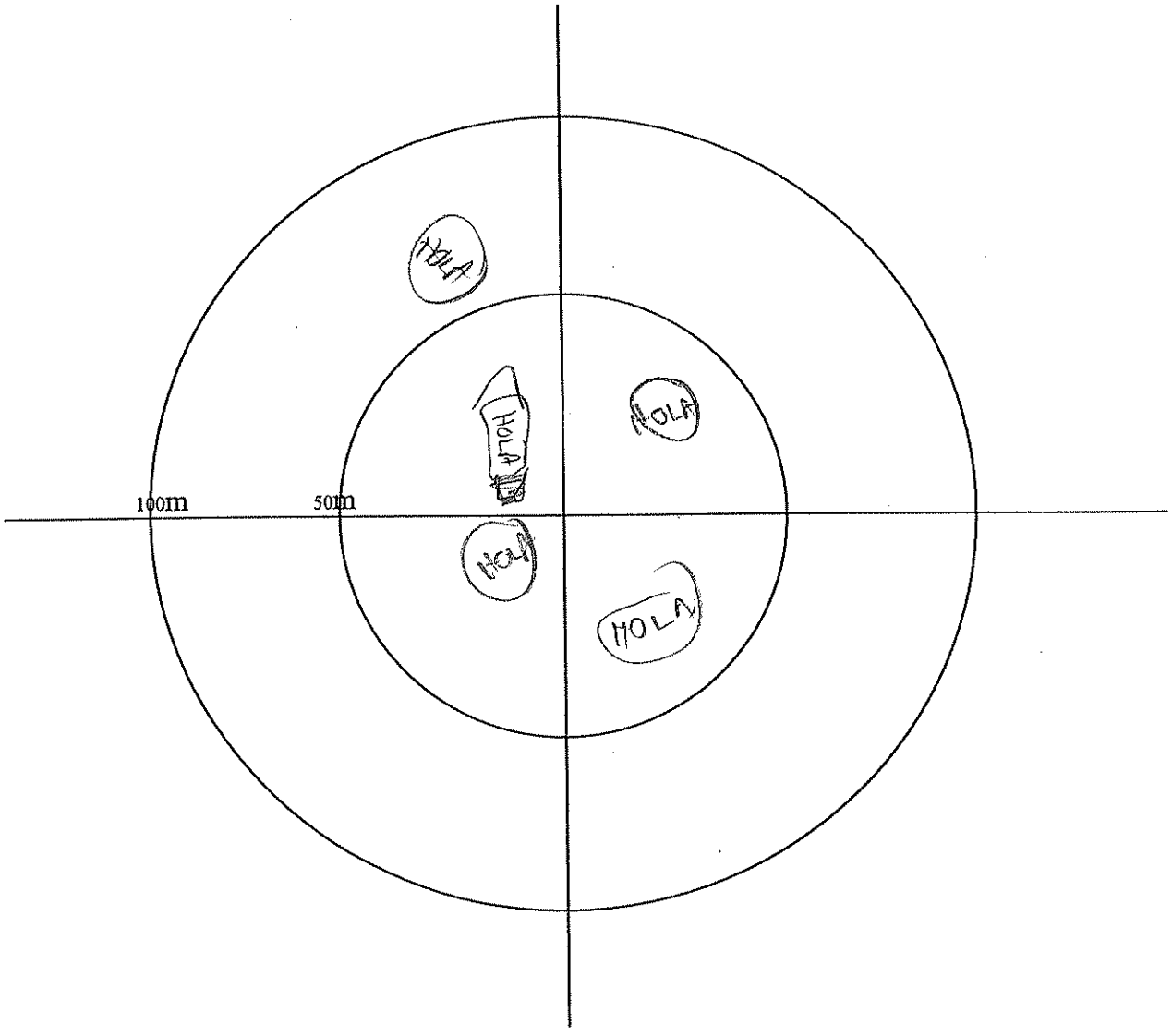
1 - BTH

2 - close to TH

3 - UBS

4 - WABS

Outside/Flythru



Point Count Data Form

Observer: SKM	Site: GES	Date: 02/25
Station ID: RT2-1	Visit #: V2	Start Time (HH:MM): 11:31
Beaufort Wind Scale: 1	Cloud Cover (%): 0	Temperature (°C): -16
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

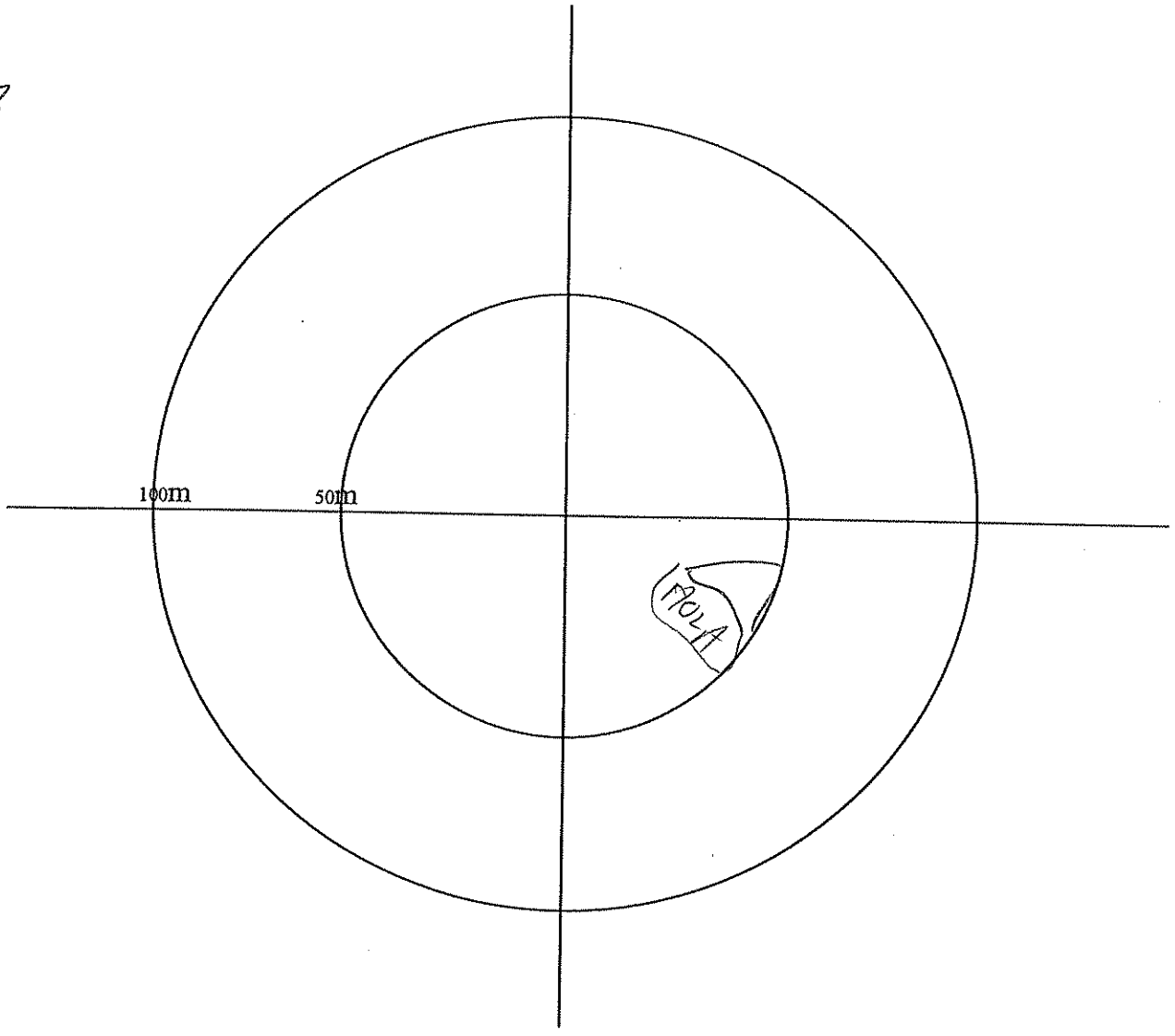
- RWBL — Single bird, singing/calling
- RWBL ↔ RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - V BS
4 - WA BS

Outside/Flythru
AMCR -4
RTHA

RTHA @



Point Count Data Form

Observer: Skm	Site: CES	Date: Mar. 12
Station ID: PR1	Visit #: V3	Start Time (HH:MM): 09:08
Beaufort Wind Scale: 4	Cloud Cover (%): 80	Temperature (°C): -3
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

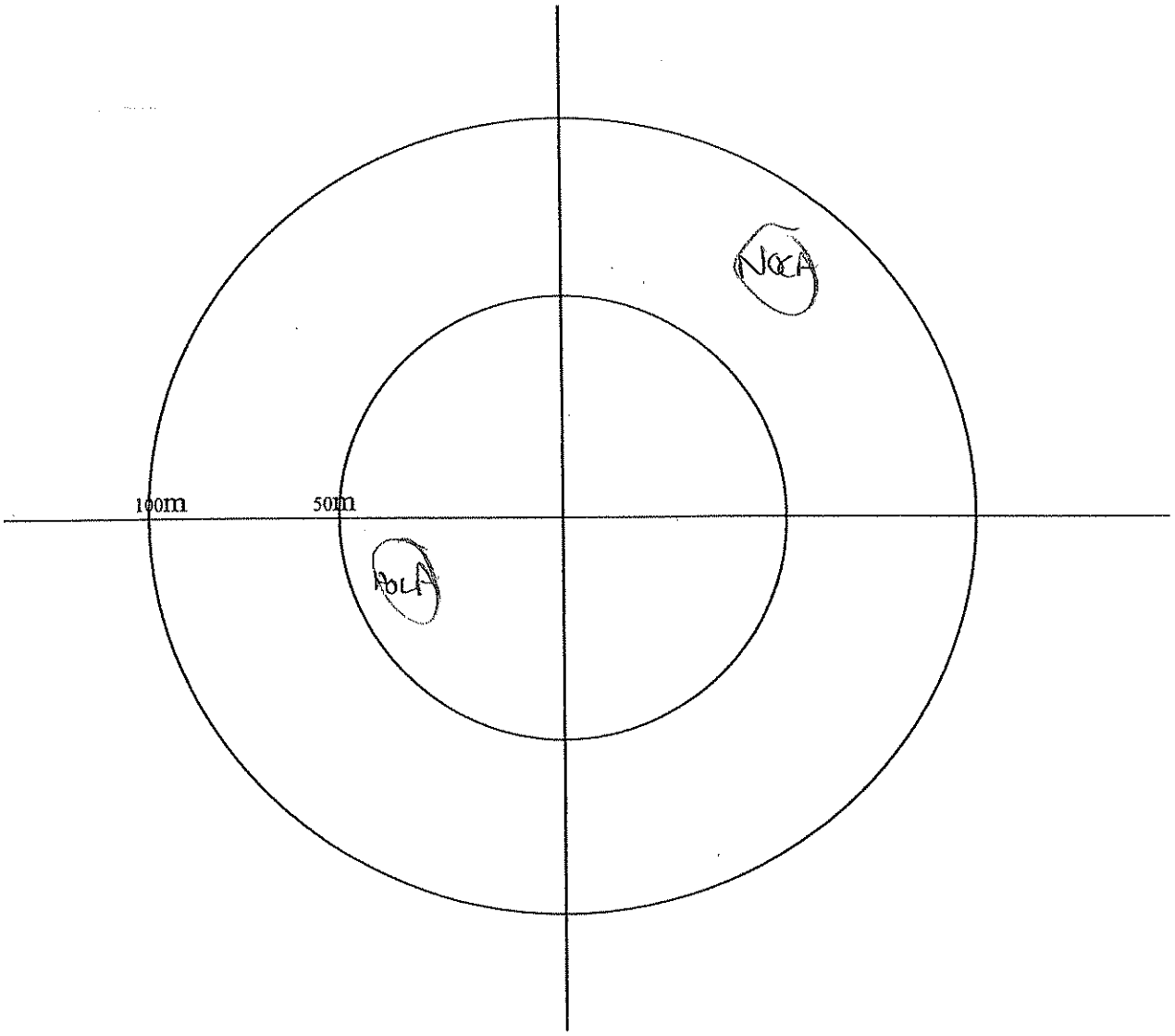
Symbols

- RWBL — Single bird, singing/calling
- RWBL → ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru
AMCR
EUST-SO
HOLA



Point Count Data Form

Observer: SXM	Site: GGS	Date: Mar. 12/08
Station ID: PR2	Visit #: ~3	Start Time (HH:MM): 09:20
Beaufort Wind Scale: 3	Cloud Cover (%): 100	Temperature (°C): -4
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

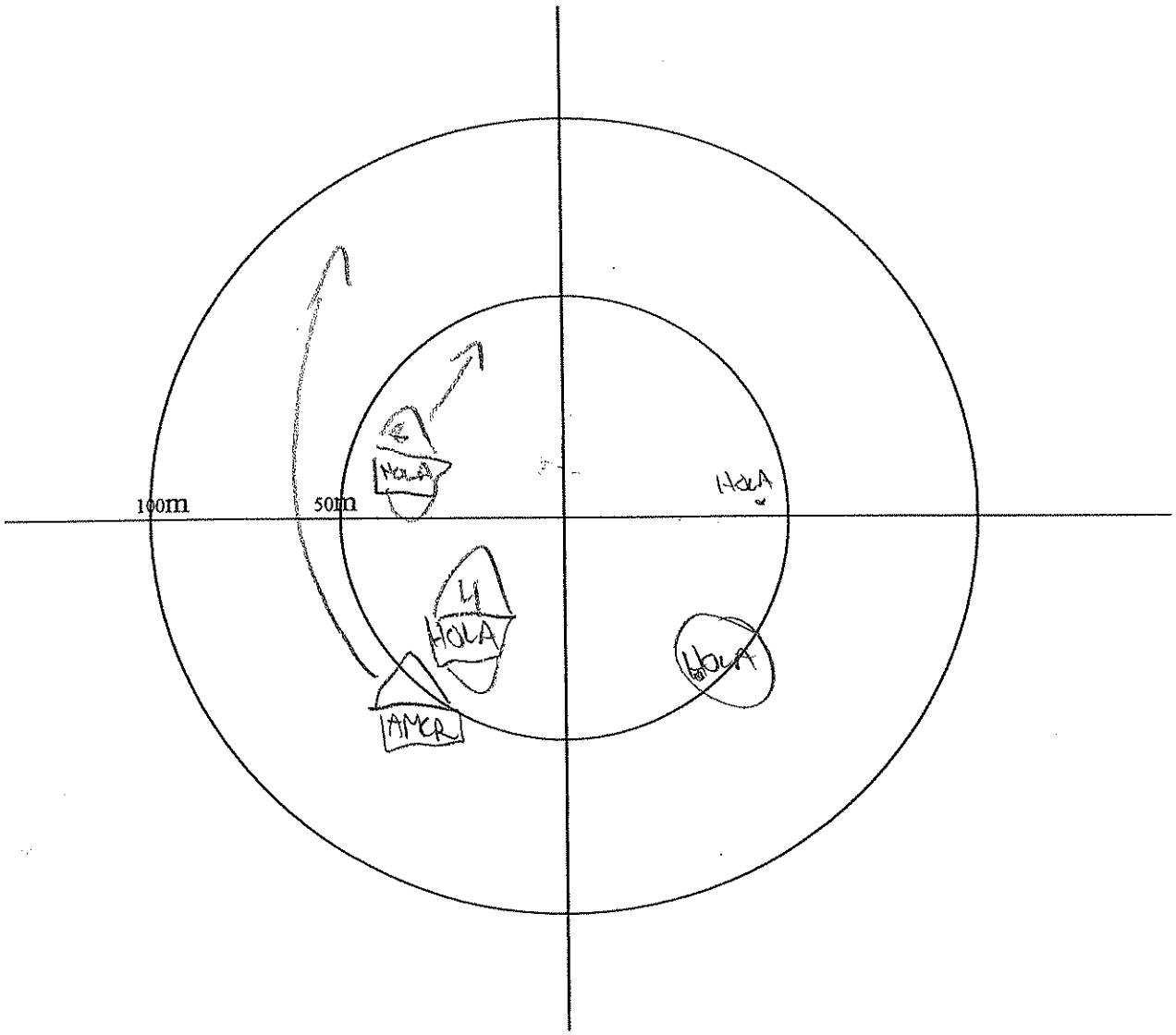
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← → RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - U BS
4 - WABS

Outside/Flythru
AMCR



Point Count Data Form

Observer: Skv	Site: GES	Date: Mar. 12
Station ID: P3	Visit #: 3	Start Time (HH:MM): 08:55
Beaufort Wind Scale: 4	Cloud Cover (%): 50	Temperature (°C): -4
Precipitation: —	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

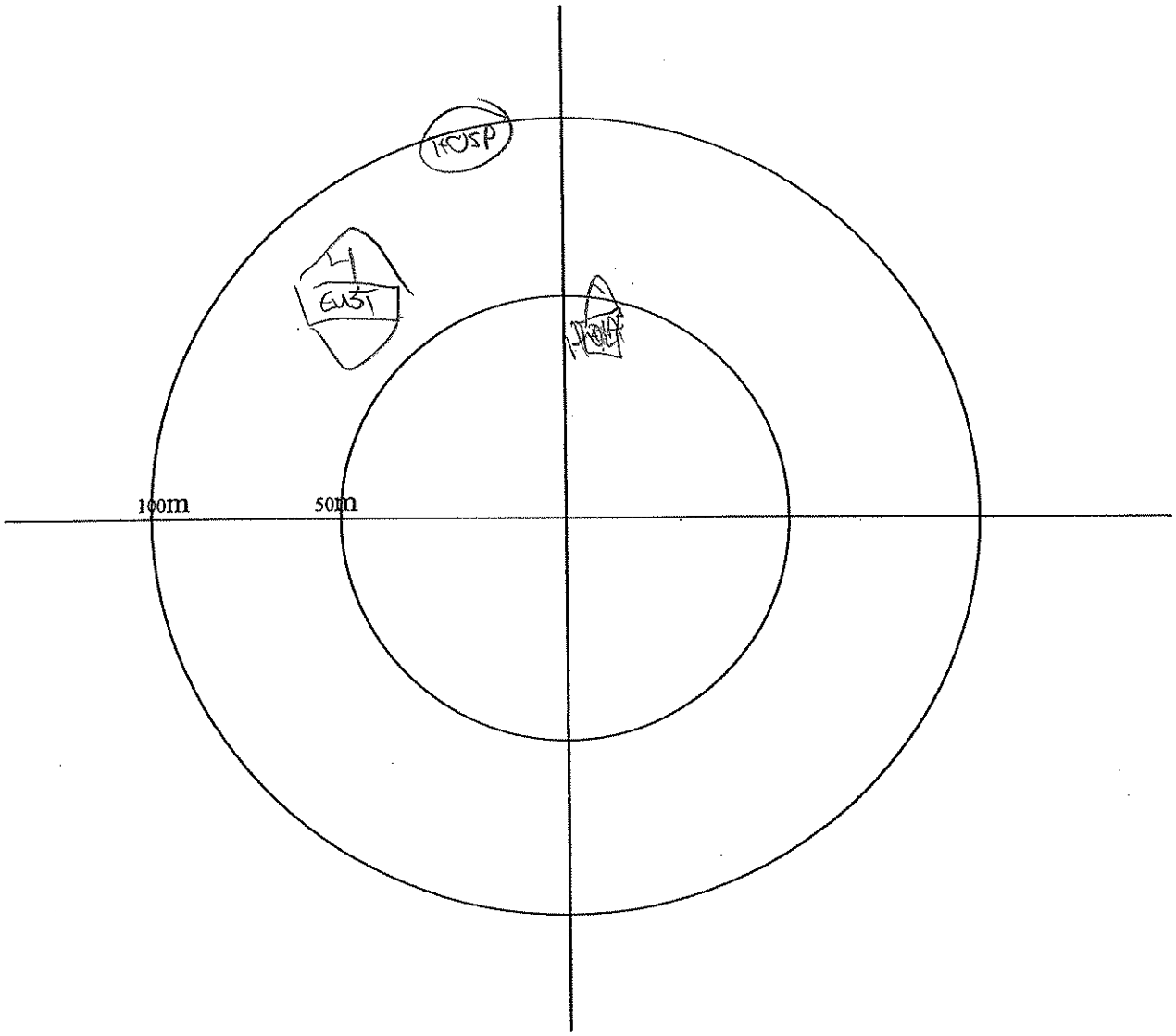
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru
AMCR
HOLA



Point Count Data Form

Observer: SKM	Site: GES	Date: Mar. 12
Station ID: FF 4	Visit #: 3	Start Time (HH:MM): 09:32
Beaufort Wind Scale: 3	Cloud Cover (%): 100	Temperature (°C): ~4
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

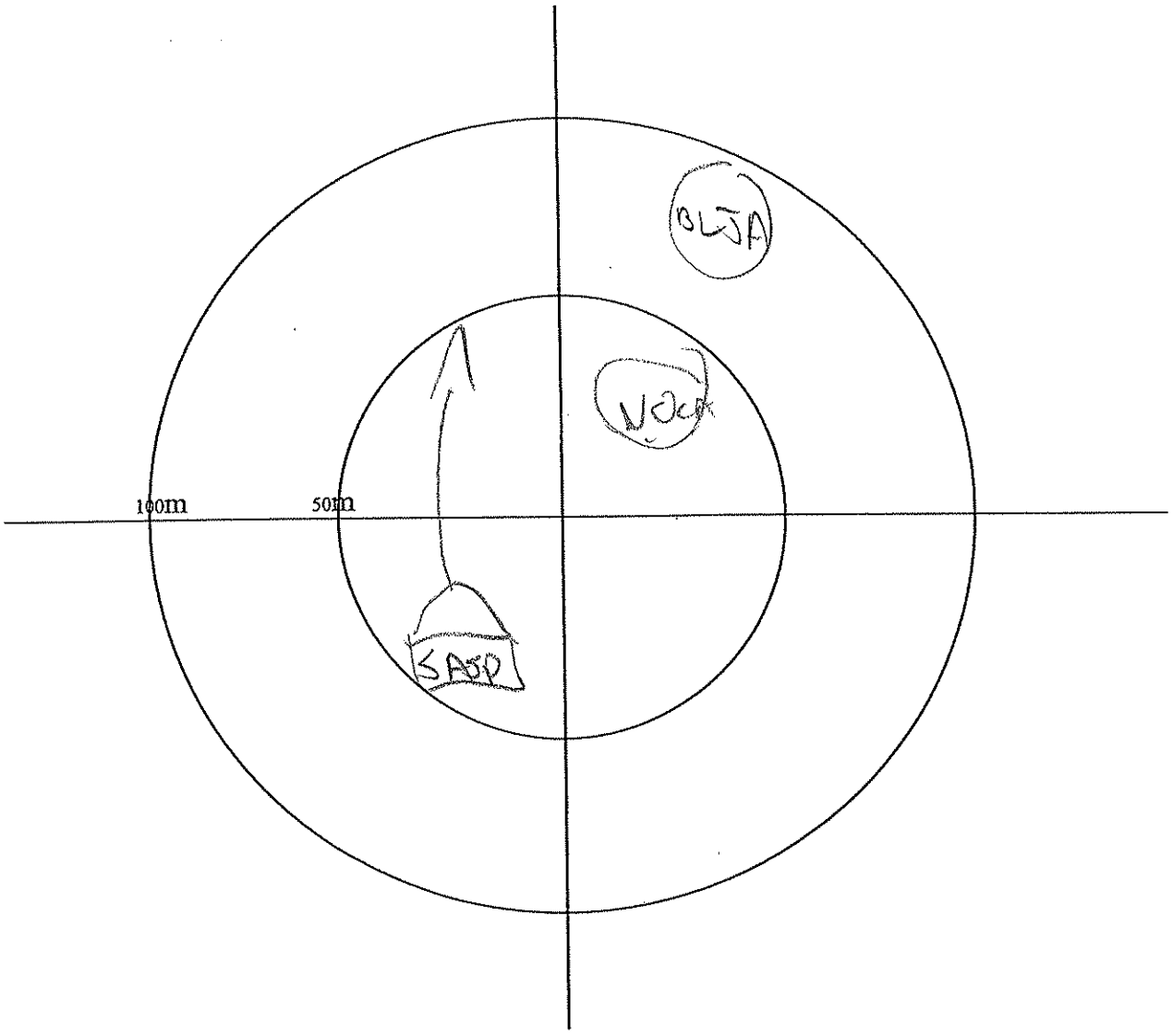
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WA BS

Outside/Flythru
AMCR 2
HOLA



Point Count Data Form

Observer: SKM	Site: GES	Date: Mar. 13
Station ID: FF5	Visit #: V3	Start Time (HH:MM): 12:09
Beaufort Wind Scale: 4	Cloud Cover (%): 100	Temperature (°C): -4
Precipitation: —	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

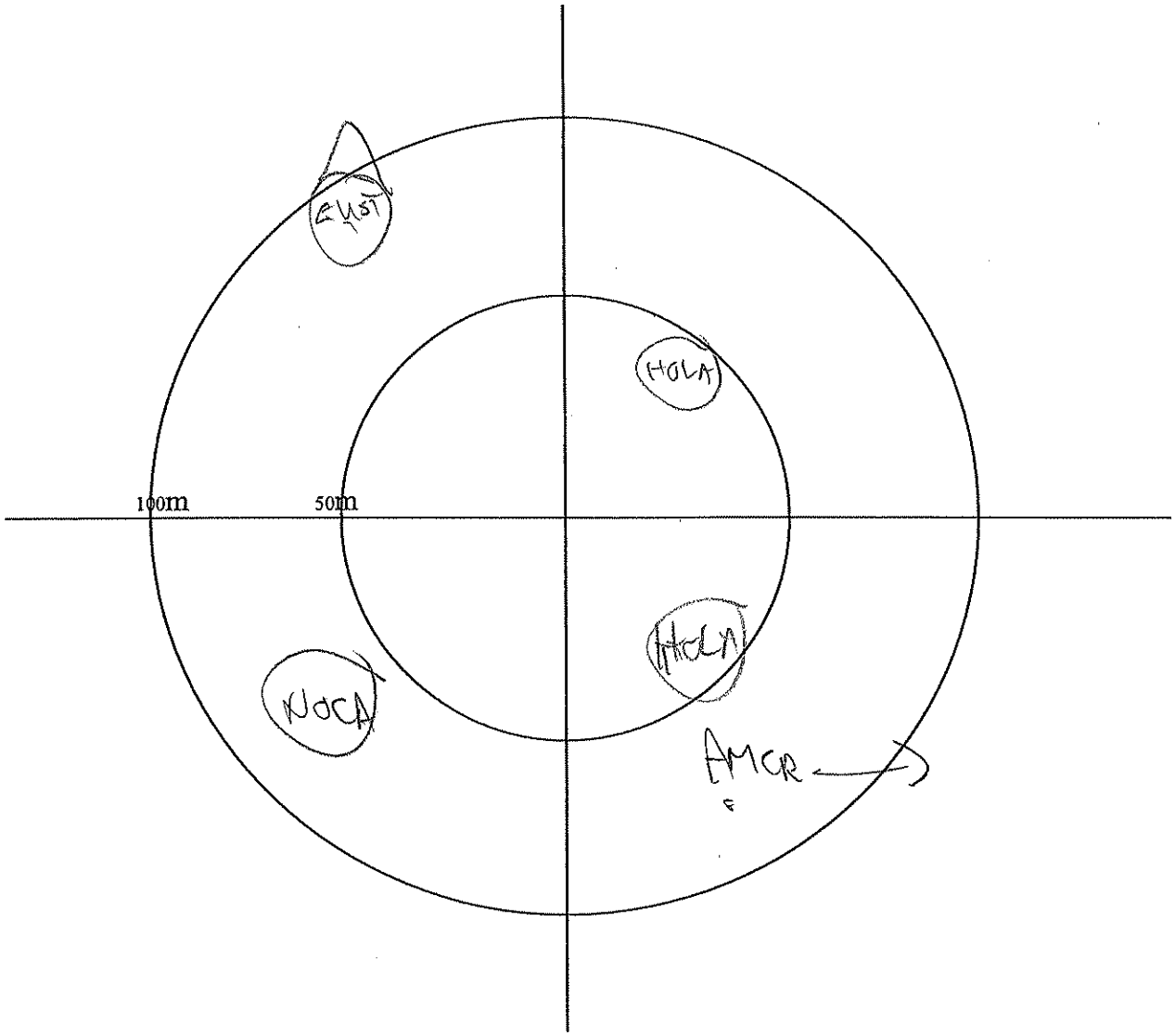
1 - BTH

2 - close to TH

3 - V BS

4 - WABS

Outside/Flythru
EWST - 3



Point Count Data Form

Observer: SKM	Site: GES	Date: Mar. 13
Station ID: RF6	Visit #: 1/3	Start Time (HH:MM): 12:21
Beaufort Wind Scale: 4	Cloud Cover (%): 100	Temperature (°C): -2
Precipitation: —	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

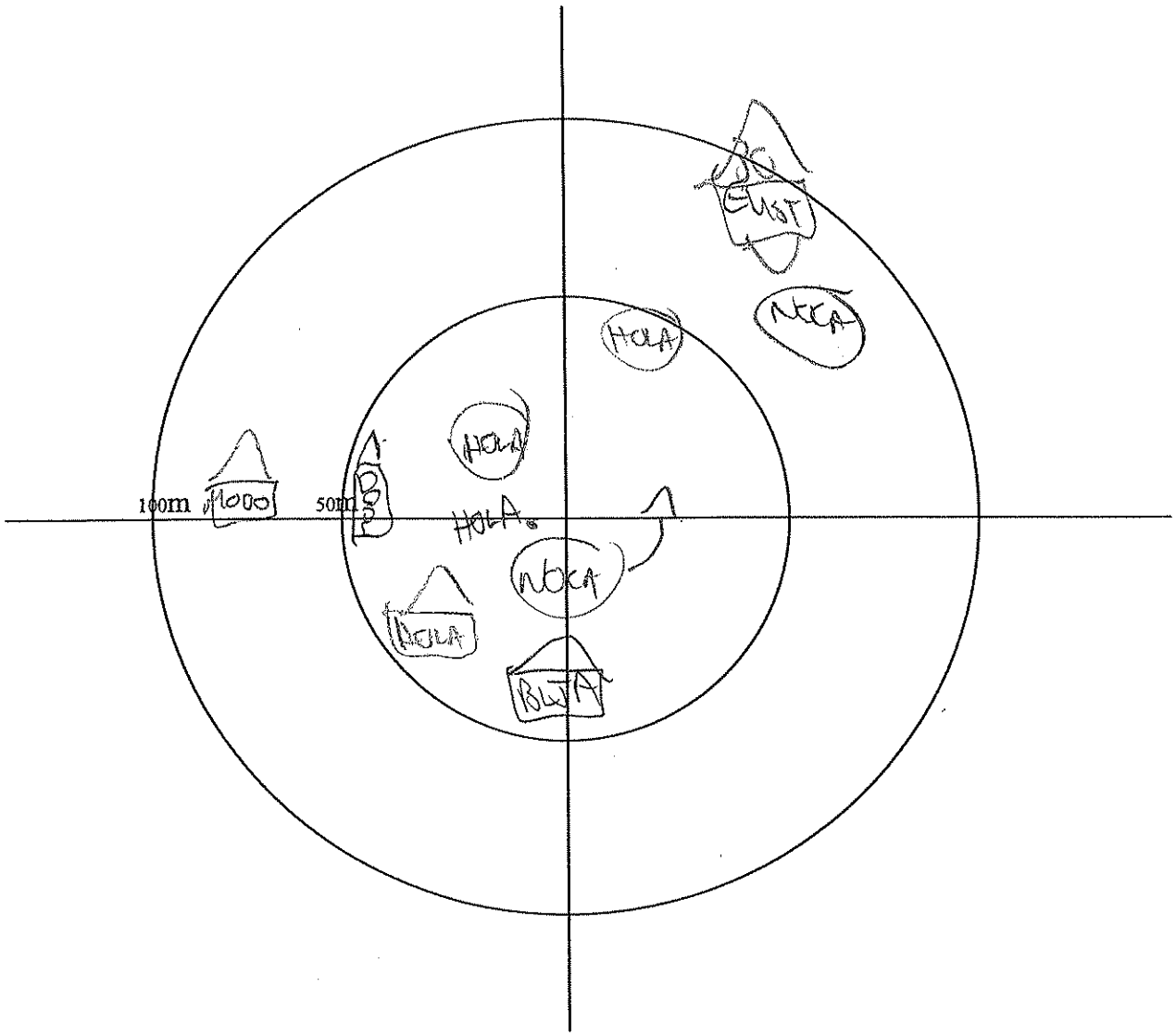
1 - BTH

2 - Close to TH

3 - V BS

4 - WABS

Outside/Flythru
EUST 2
1 HOLA



Point Count Data Form

Observer: SKM	Site: GES	Date: Mar. 13
Station ID: FT7	Visit #: V3	Start Time (HH:MM): 1151
Beaufort Wind Scale: 1	Cloud Cover (%): 100	Temperature (°C): -4
Precipitation:	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

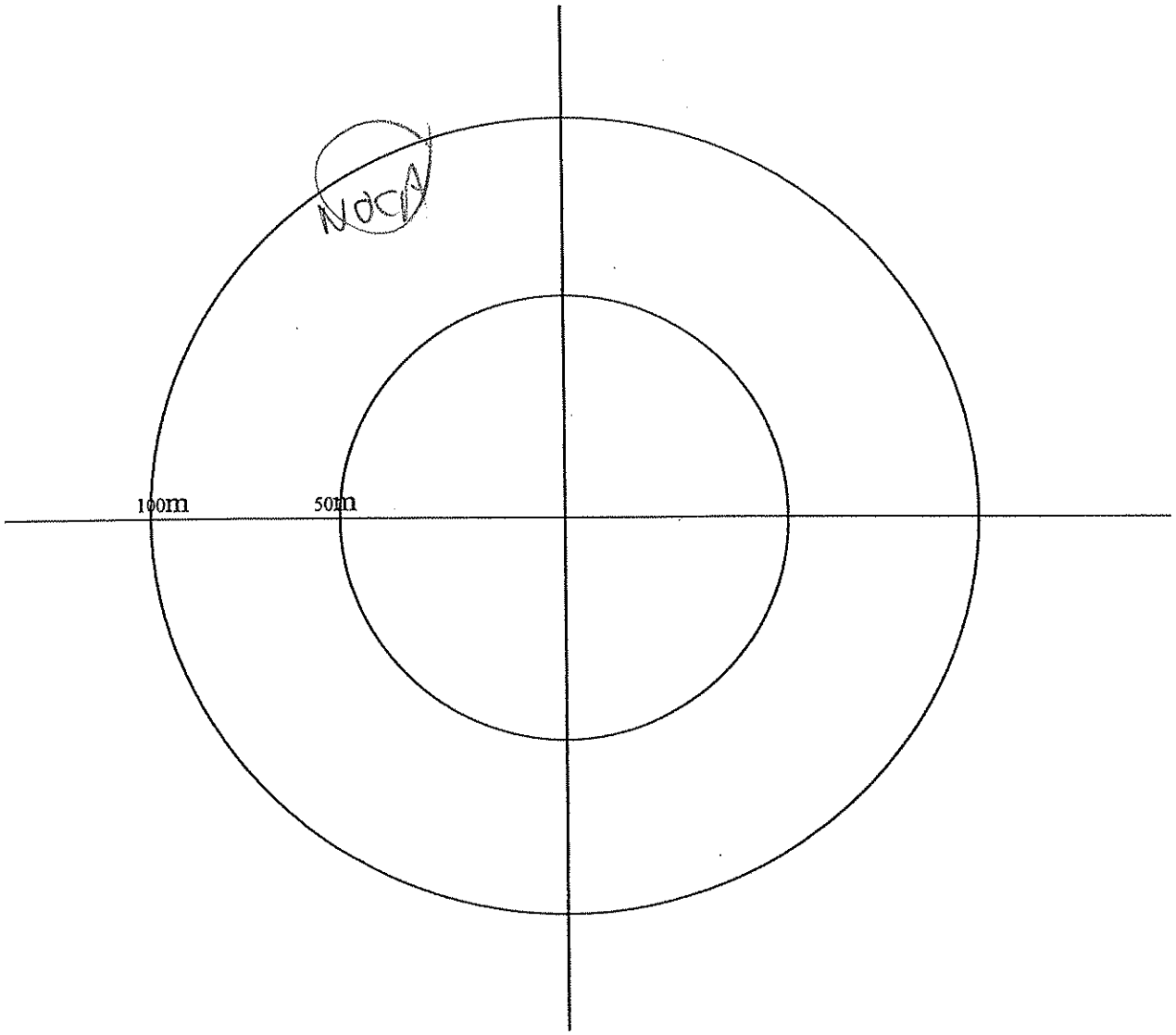
1 - BTH

2 - Close to TH

3 - V BS

4 - WA BS

Outside/Flythru
NOCA - 3
EVSY - 10
1 - 16



Point Count Data Form

Observer: SKM	Site: CES	Date: Mar. 12
Station ID: E8	Visit #: V3	Start Time (HH:MM): 09:43
Beaufort Wind Scale: 3	Cloud Cover (%): 100	Temperature (°C): -3
Precipitation: —	Visibility: clear	
Remarks: v. light flurry		

Aerial Foragers	
Species	Tally

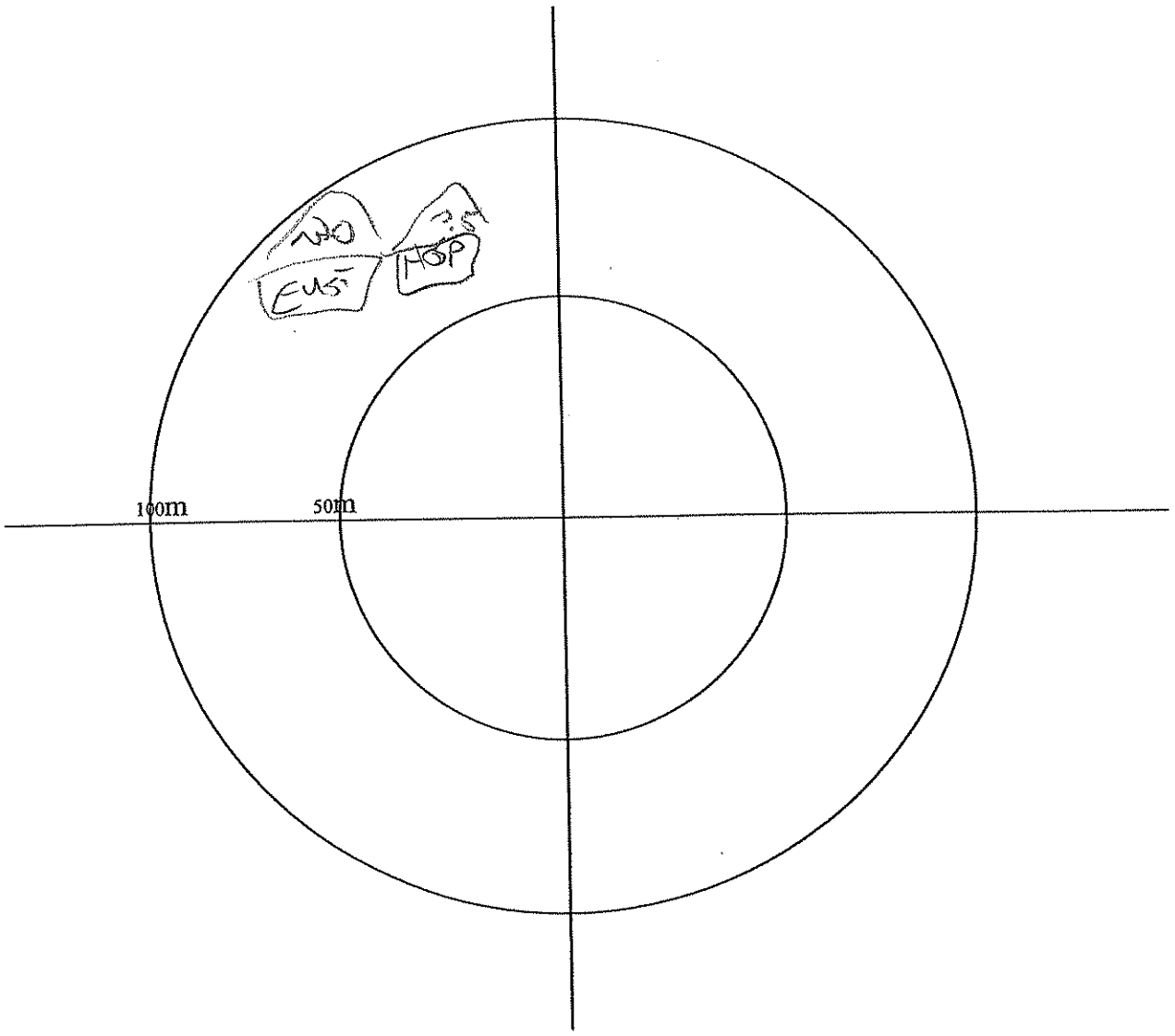
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WAB S

Outside/Flythru
Cust
HOLA



Point Count Data Form

Observer: Skm	Site: GGS	Date: Mar. 13
Station ID: FP4	Visit #: V3	Start Time (HH:MM): 10:31
Beaufort Wind Scale: 4	Cloud Cover (%): 100	Temperature (°C): -4
Precipitation: v. light flurry	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

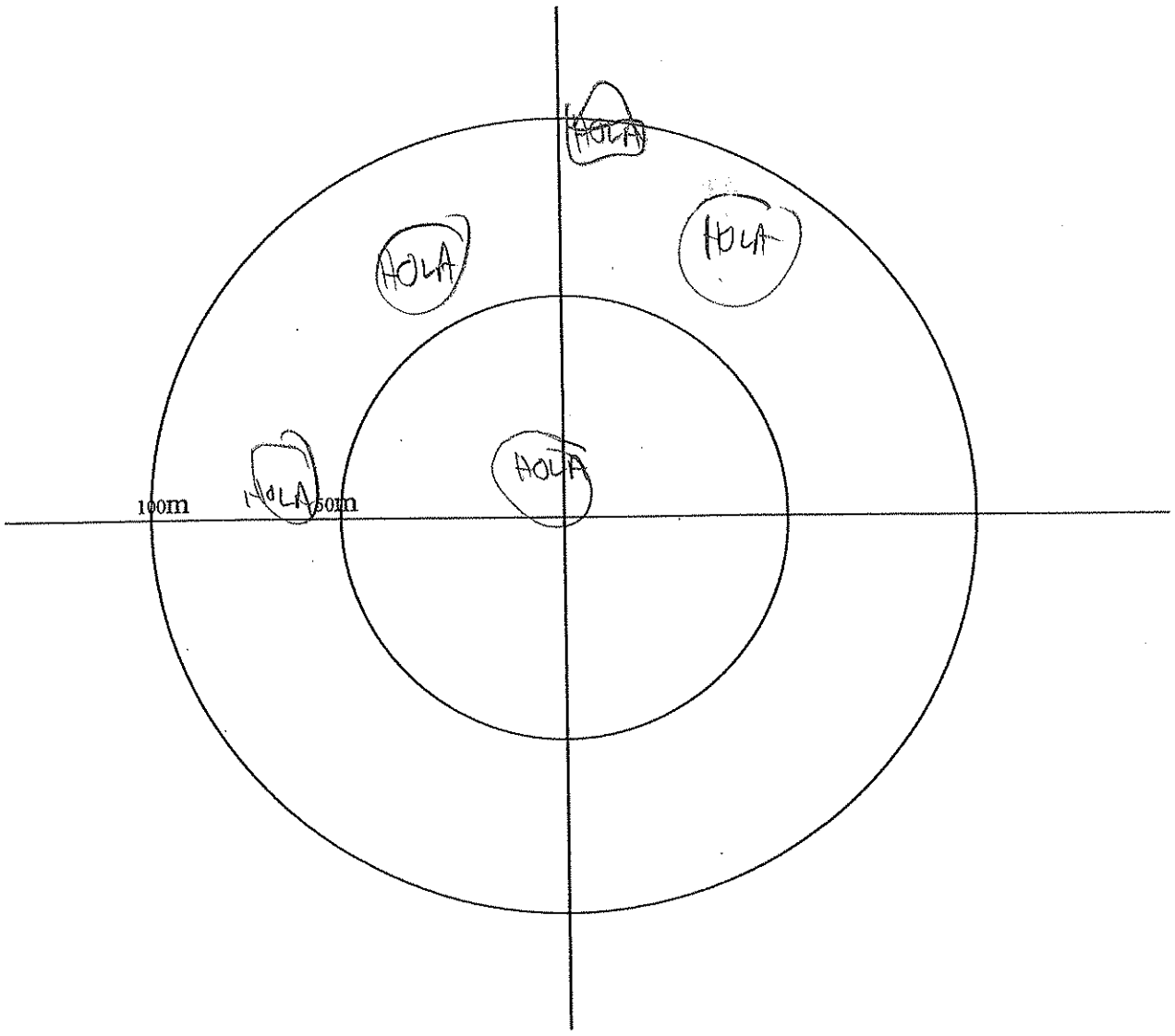
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru



Point Count Data Form

Observer: SKM	Site: GES	Date: Mar. 13
Station ID: FF 10	Visit #: W3	Start Time (HH:MM): 10:20
Beaufort Wind Scale: 4	Cloud Cover (%): 100	Temperature (°C): -3
Precipitation: v. light flurry	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

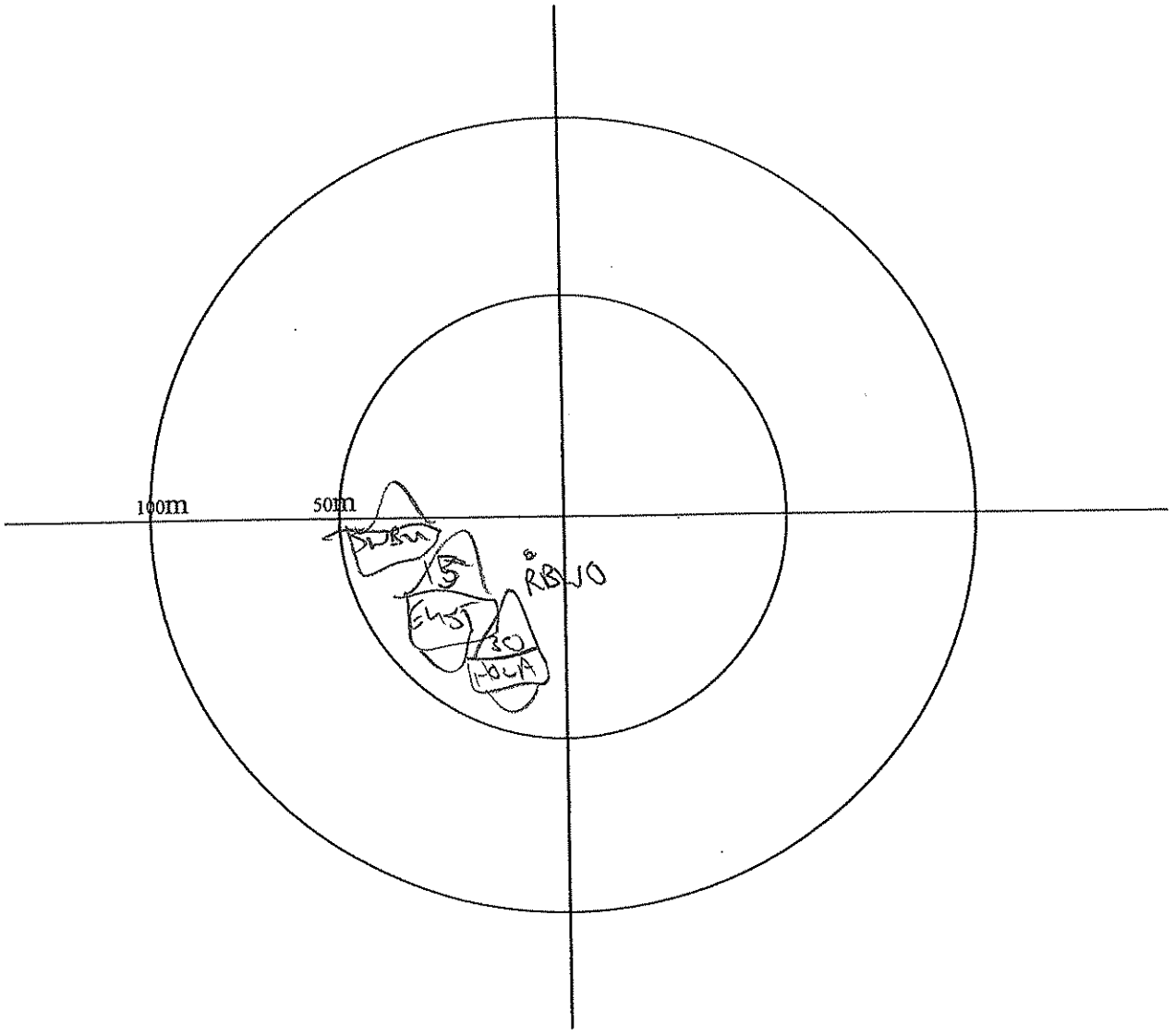
Symbols

- RWBL — Single bird, singing/calling
- RWBL → ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - W BS
4 - WABS

Outside/Flythru



Point Count Data Form

Observer: SKM	Site: GES	Date: Mar. 12
Station ID: FF 11	Visit #: V3	Start Time (HH:MM): 10:07
Beaufort Wind Scale: 3	Cloud Cover (%): 100	Temperature (°C): -?
Precipitation: v. light flurry	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

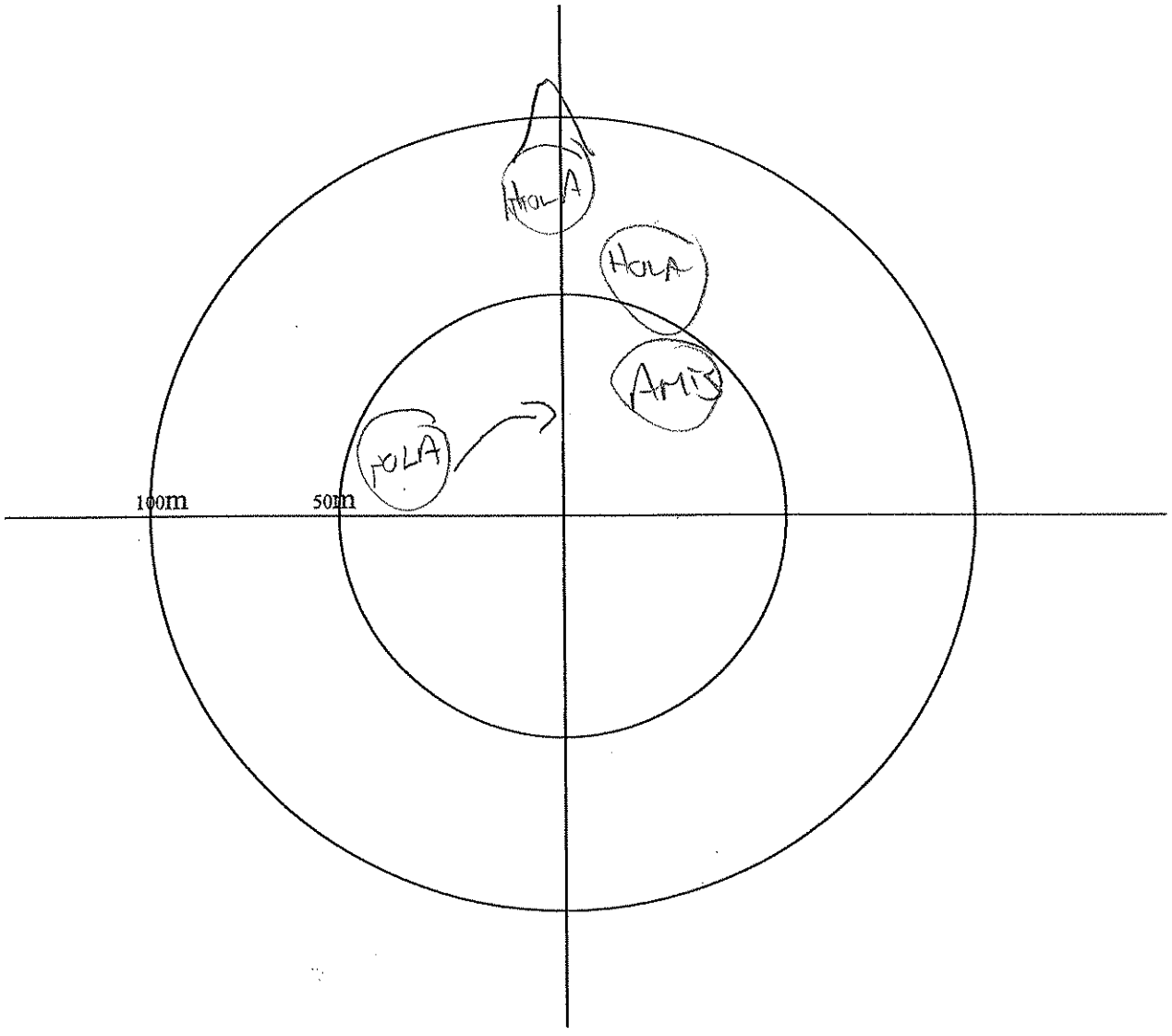
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff birds of same sp.
- Pair together
- Family group
- Obs, but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WA BS

Outside/Flythru
MODO
AMCR



Point Count Data Form

Observer: SKM	Site: GGS	Date: Mar 12
Station ID: FF 12	Visit #: V3	Start Time (HH:MM): 09:54
Beaufort Wind Scale: 3	Cloud Cover (%): 100	Temperature (°C): ~3
Precipitation: v Light Snow	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

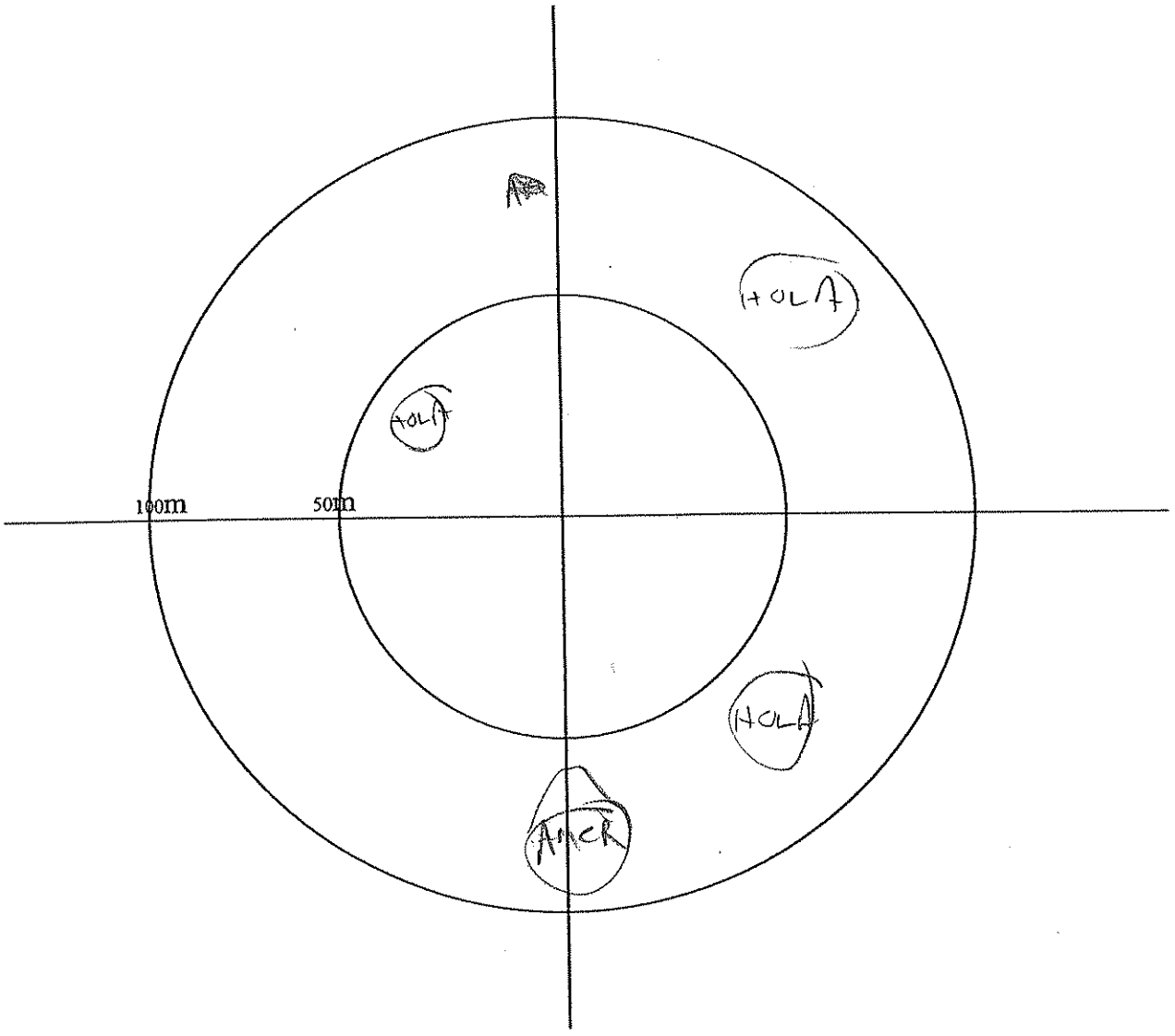
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - W BS
4 - WABS

Outside/Flythru
AMCR
HOLA - 6



Point Count Data Form

Observer: SKM	Site: GG	Date: Mar. 12
Station ID: PF 13	Visit #: 3	Start Time (HH:MM): 10:56
Beaufort Wind Scale: 4	Cloud Cover (%): 100	Temperature (°C): -3
Precipitation: -	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

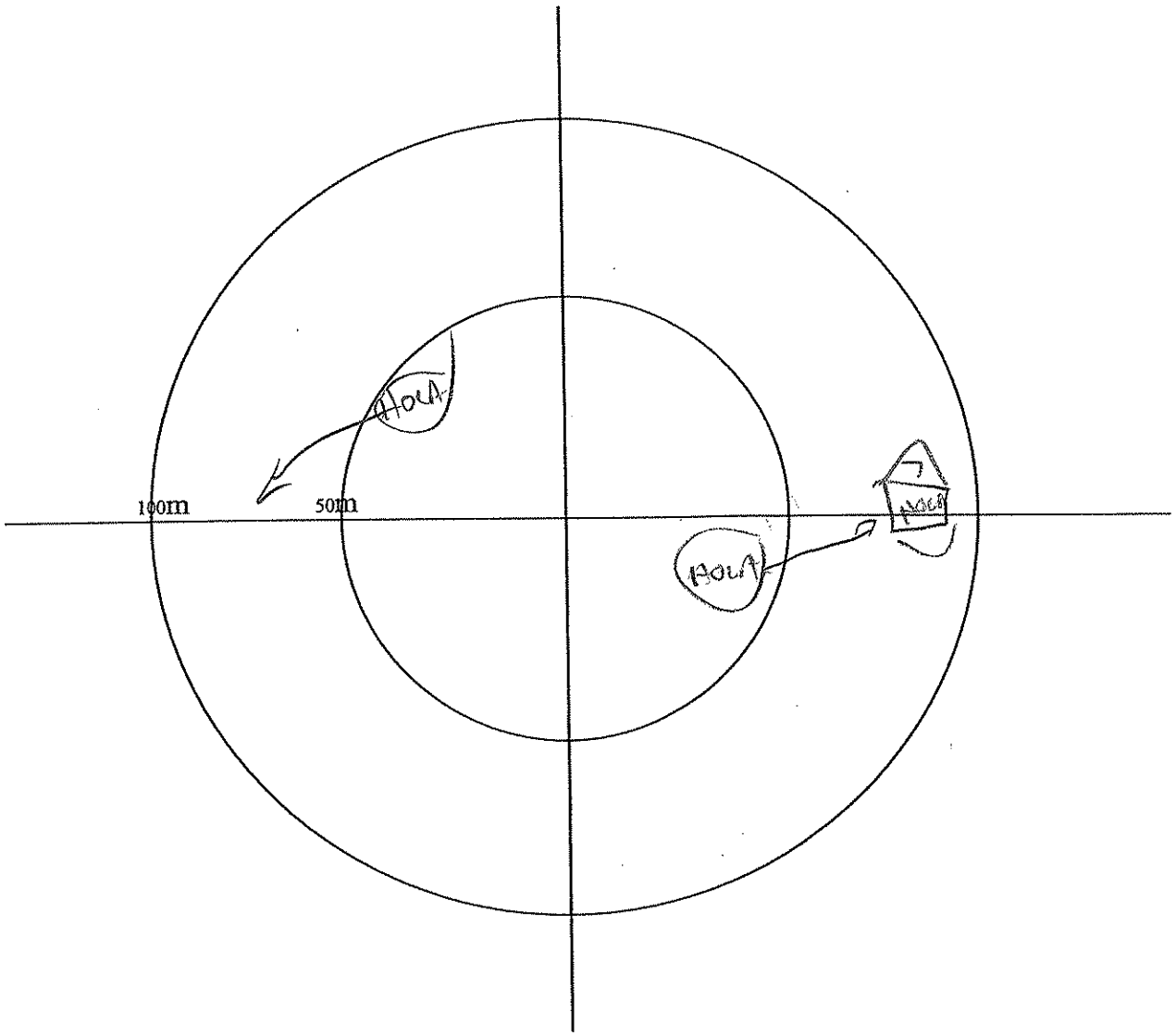
1 - BTH

2 - close to TH

3 - V BS

4 - WA BS

Outside/Flythru
AMCR - 3



Point Count Data Form

Observer: SKM	Site: GES	Date: Mar. 13
Station ID: FR14	Visit #: V3	Start Time (HH:MM): 11:08
Beaufort Wind Scale: 4	Cloud Cover (%): 100	Temperature (°C): -3
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

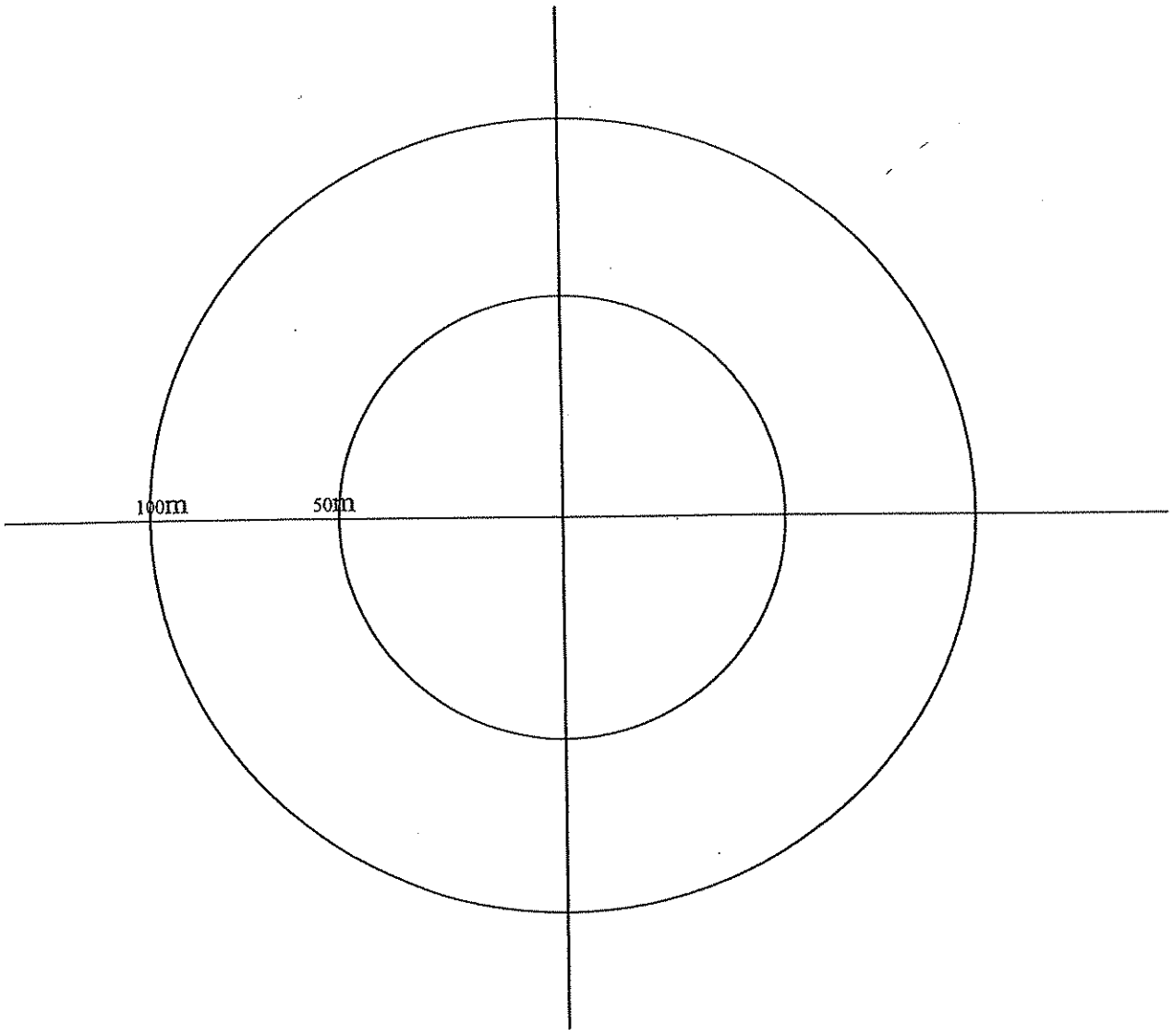
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru
AMCR
CHST: 8



Point Count Data Form

Observer: SKM	Site: ~~EES~~	Date: May 13
Station ID: FF 13	Visit #: V3	Start Time (HH:MM): 11:18
Beaufort Wind Scale: 4	Cloud Cover (%): 100	Temperature (°C): -5
Precipitation: ____	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

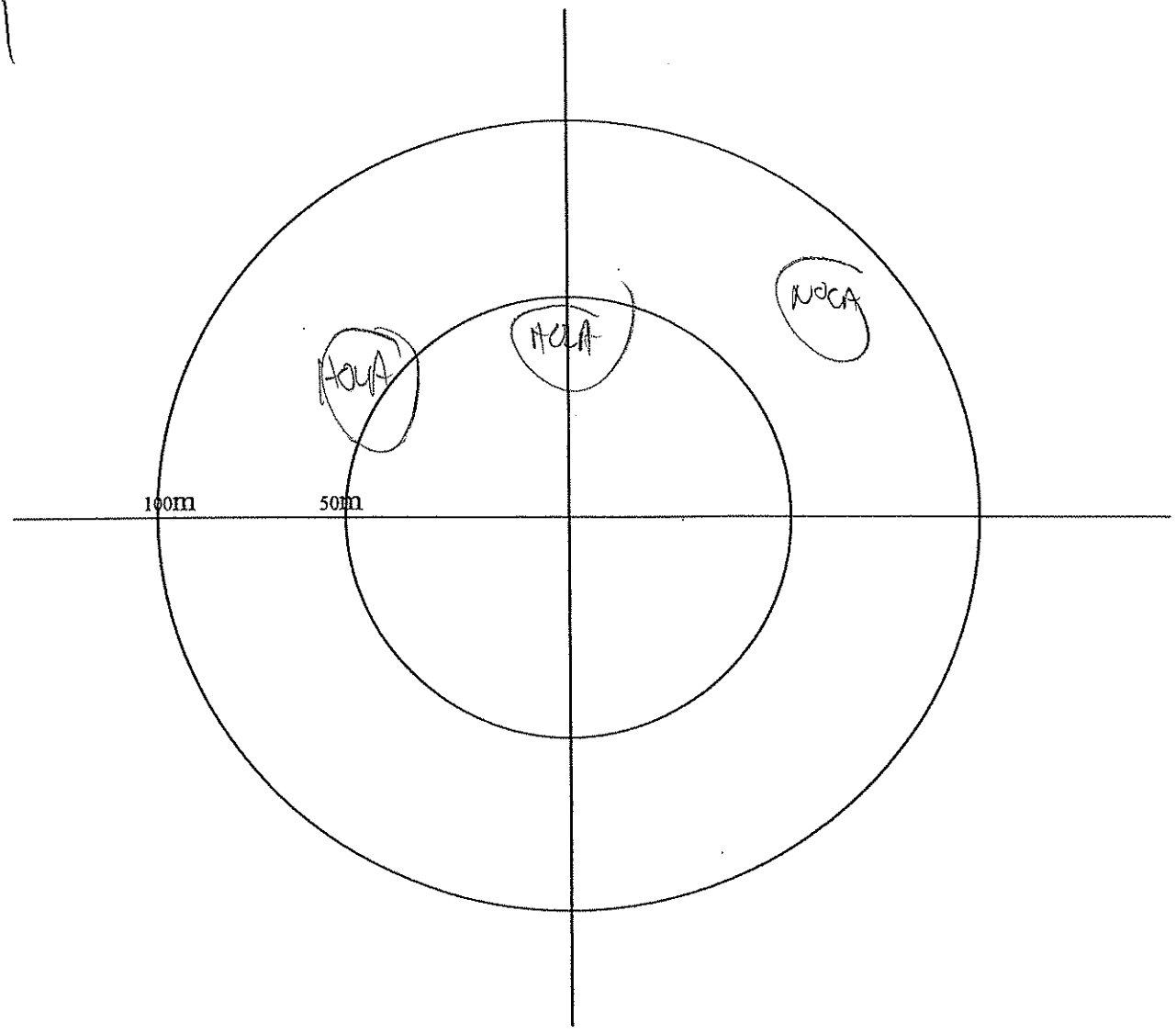
- (RWBL) Single bird, singing/calling
- (RWBL) → ← (RWBL) Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- O—→O known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WABS

Outside/Flythru
MYWA
HOFI - 1

Gray Squirrel



Point Count Data Form

Observer: SKM	Site: GES	Date: Mar. 13
Station ID: FF16	Visit #: 3	Start Time (HH:MM): 11:30
Beaufort Wind Scale: 4	Cloud Cover (%): POC	Temperature (°C): -3
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

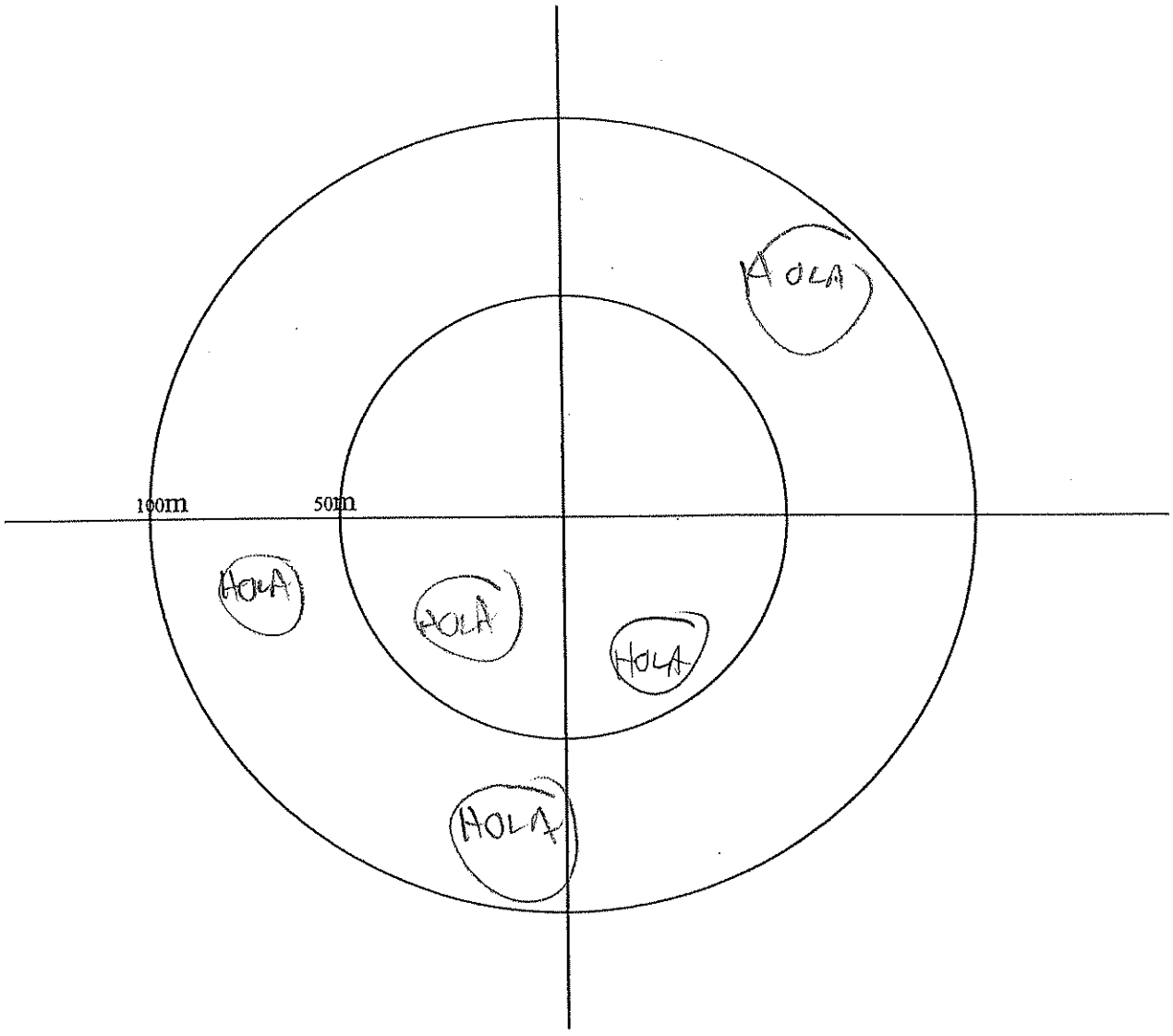
Symbols

- RWBL — Single bird, singing/calling
- RWBL ↔ RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs, but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - WBS
4 - WABS

Outside/Flythru
FLYT - 80
AMCK



Point Count Data Form

Observer: SMM	Site: GES	Date: Mar. 13
Station ID: FF17	Visit #: V3	Start Time (HH:MM): 11:45
Beaufort Wind Scale: 4	Cloud Cover (%): 100	Temperature (°C): -3
Precipitation:	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

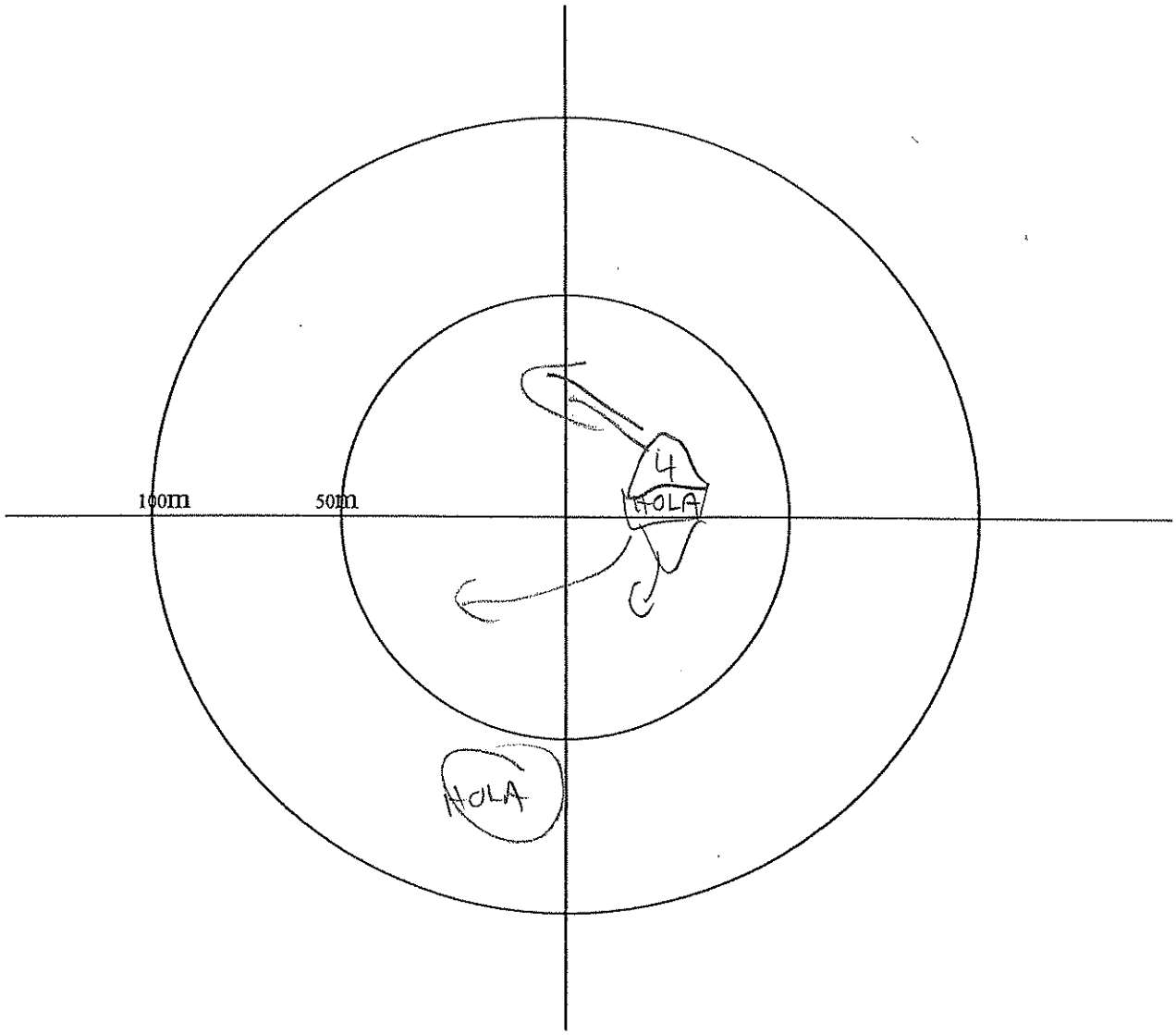
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru
RTHA
NOCA



Point Count Data Form

Observer: SKM	Site: GES	Date: Mar. 12
Station ID: RF 19	Visit #: V3	Start Time (HH:MM): 10.44
Beaufort Wind Scale: 3	Cloud Cover (%): 100	Temperature (°C): −4
Precipitation: V. light Flurry	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

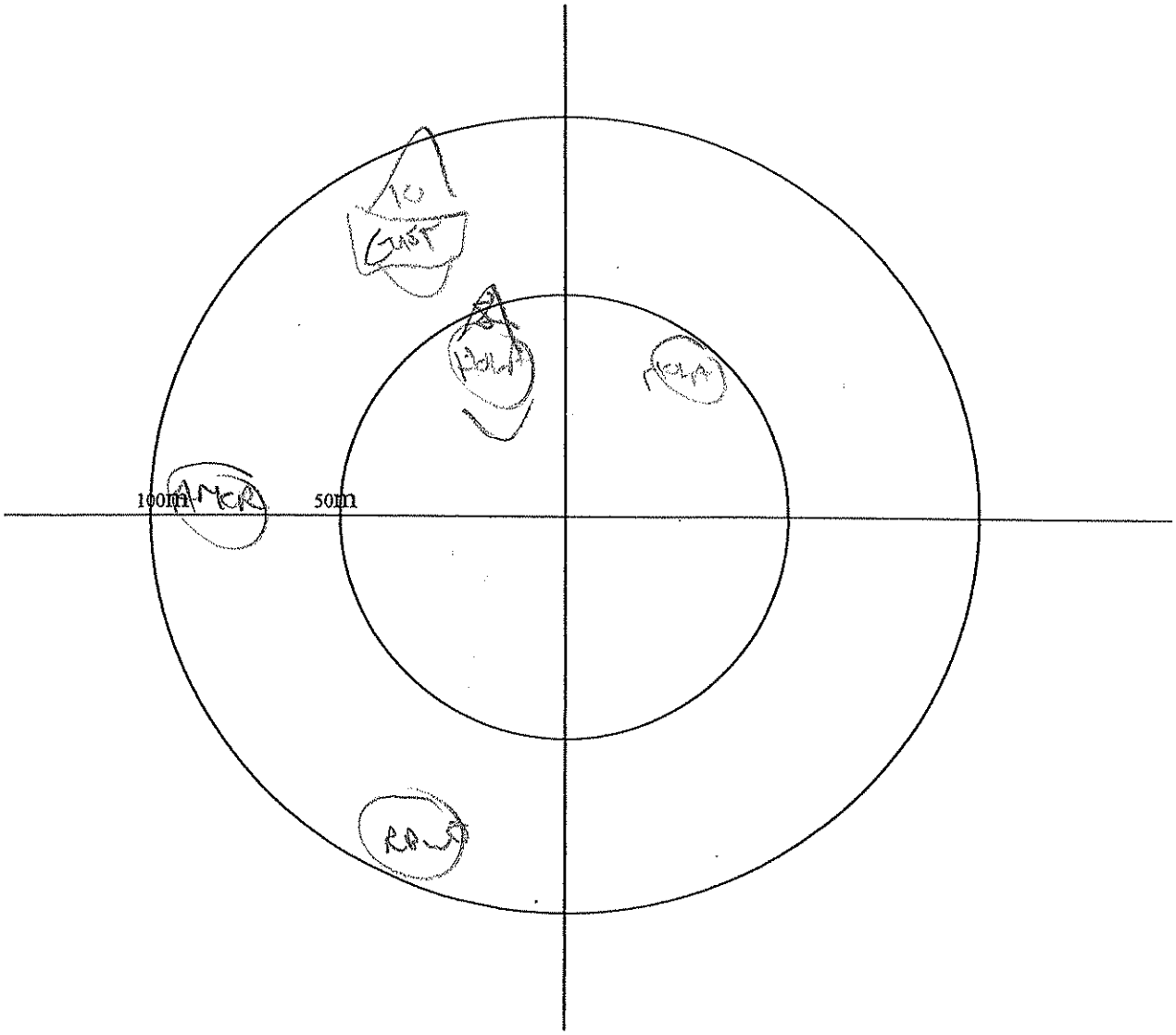
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru
EVST 10
BLJA



Point Count Data Form

Observer: SKM	Site: 665	Date: 02/11/09
Station ID: PP20	Visit #: W3	Start Time (HH:MM): 0830
Beaufort Wind Scale: 4 W	Cloud Cover (%): 60	Temperature (°C): -5°C
Precipitation: —	Visibility: Clear	
Remarks: 2 1-2cm of SNOW overnight		

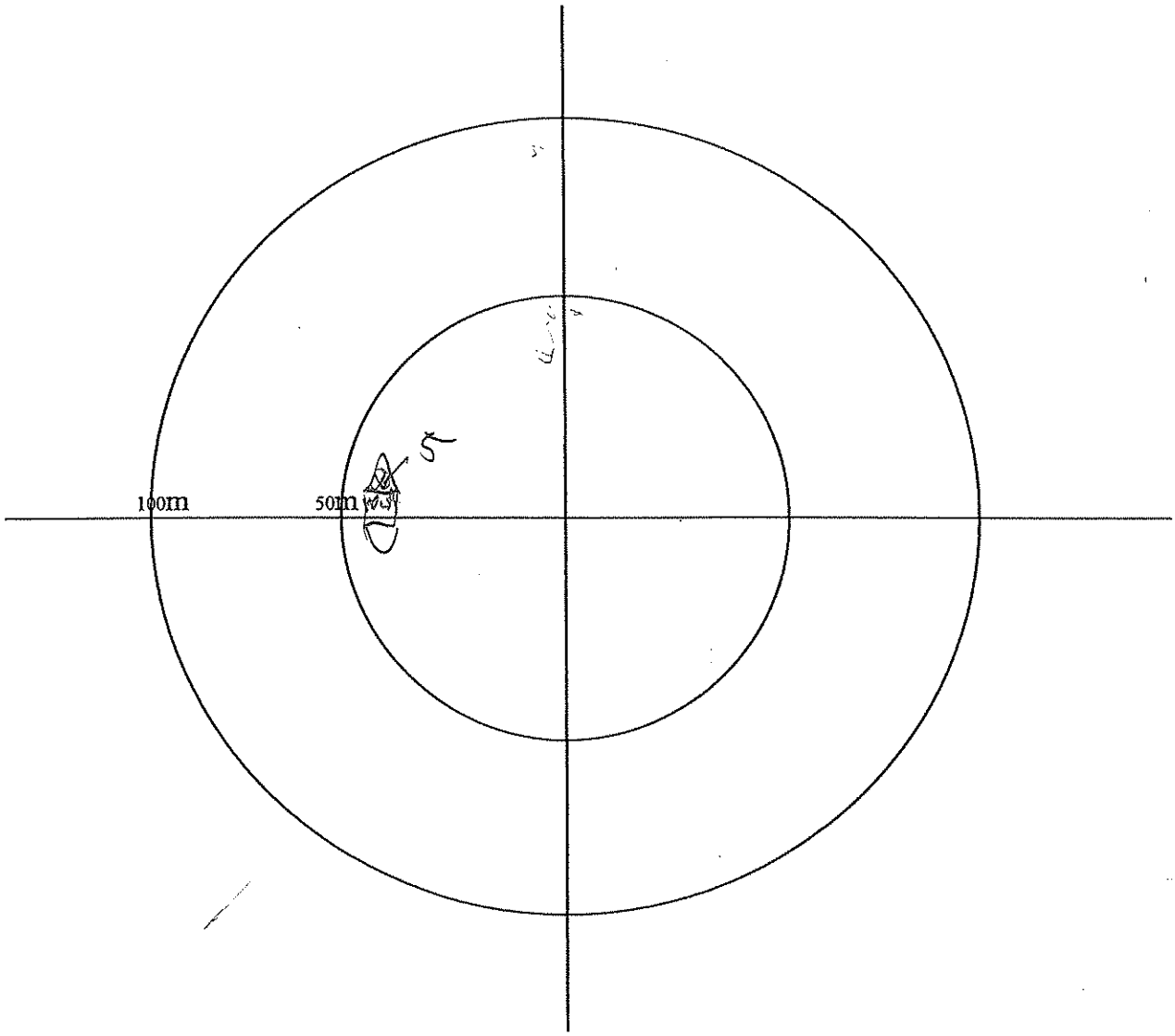
Aerial Foragers	
Species	Tally

Symbols

- RWBL — Single bird, singing/calling
- RWBL ↔ RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height
1- BTH
2- Close to TH
3- U BS
4- WA BS

Outside/Flythru
HOLA
AMCR
ROBO



Point Count Data Form

Observer: SKM	Site: GES	Date: Dec. 12
Station ID: Spot 1	Visit #: 3	Start Time (HH:MM): 08:42
Beaufort Wind Scale: 4	Cloud Cover (%): 50%	Temperature (°C): -5
Precipitation:	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

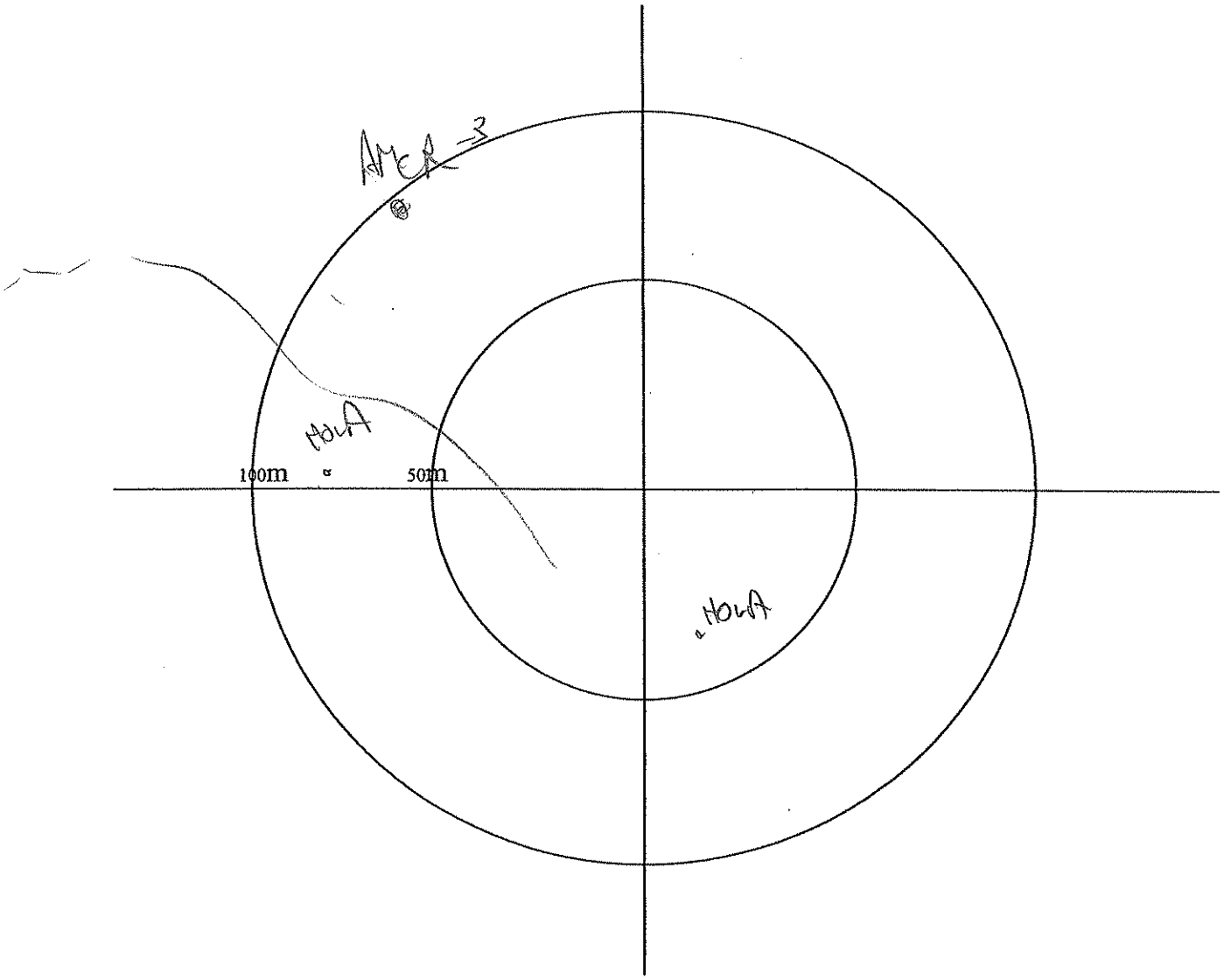
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - W BS
4 - WABS

Outside/Flythru
AMCR ~4
RTHA
NOCA



Point Count Data Form

Observer: SKM	Site: GES	Date: 04/02/104
Station ID: PA1	Visit #: S1	Start Time (HH:MM): 07:25
Beaufort Wind Scale: 1	Cloud Cover (%): 0	Temperature (°C):
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL → ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

1 - BTH

2 - close to TH

3 - U BS

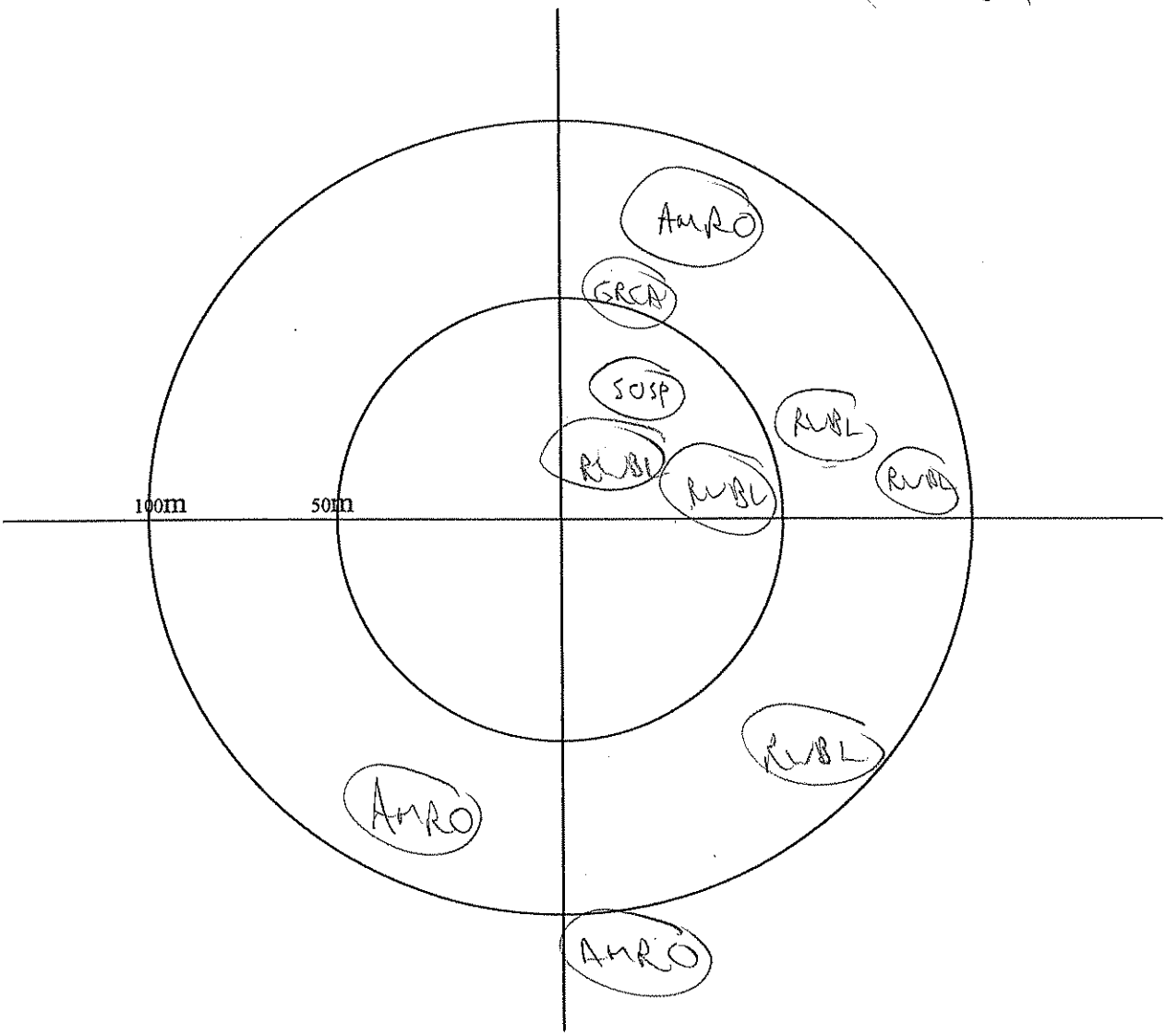
4 - WABS

Outside/Flythru
RWBL
NOCA
RBGU II
AMCR
CAGO
EUST III

MODO

COGR

BLJA



Point Count Data Form

Observer: Shm	Site: GES	Date: 04/02/08
Station ID: FF4	Visit #: S1	Start Time (HH:MM): 07:38
Beaufort Wind Scale: 1	Cloud Cover (%): 0	Temperature (°C):
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

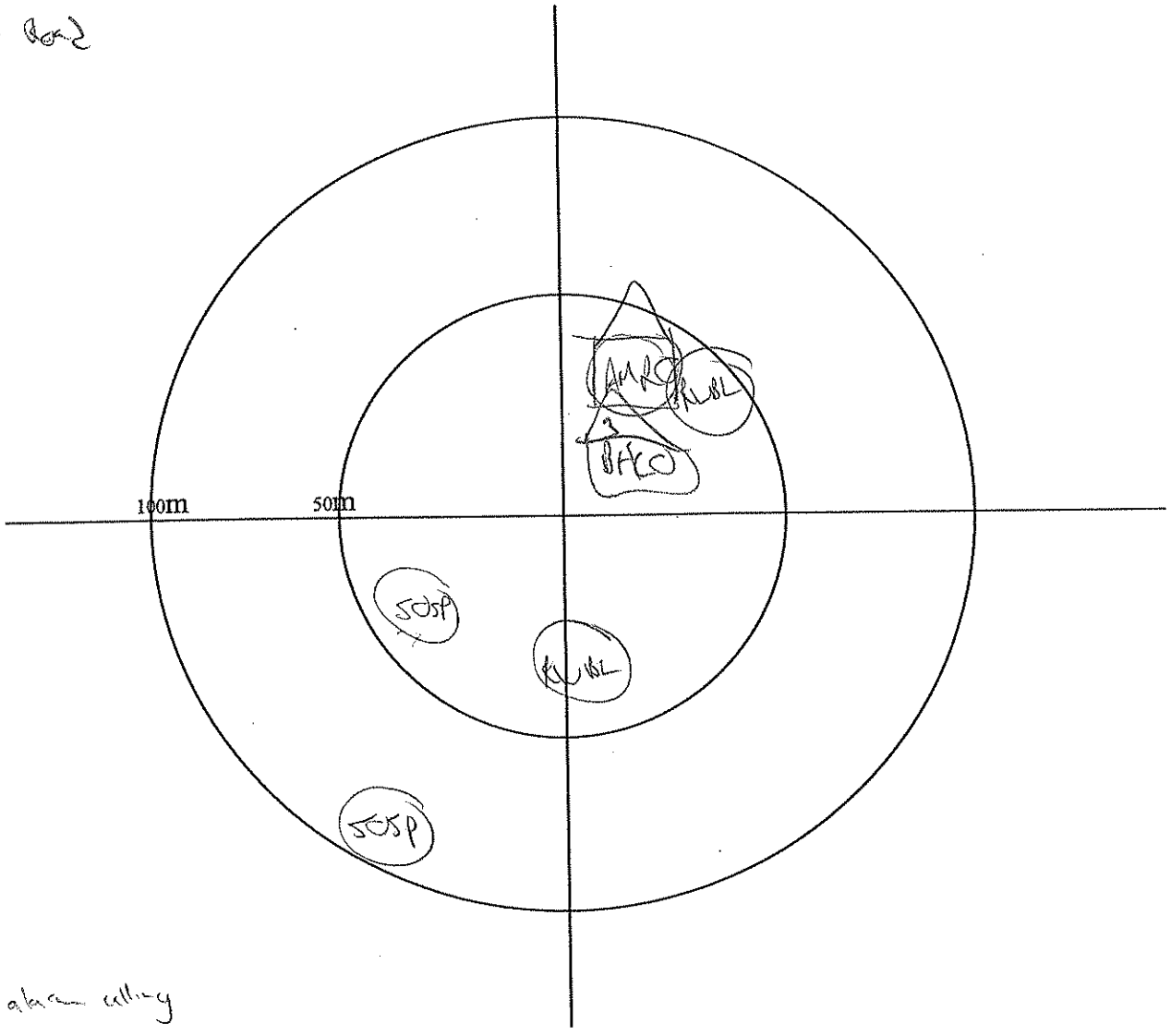
- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru
RBGR - 5
CAGO 4
KILL
AMCR 111
ROW 0

Dead raccoon or bear



AMRO - alarm calling

Point Count Data Form

Observer: SKM	Site: GES	Date: 04/02/08
Station ID: GES	Visit #: 1	Start Time (HH:MM): 07:50
Beaufort Wind Scale: 1	Cloud Cover (%): —	Temperature (°C): -1
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

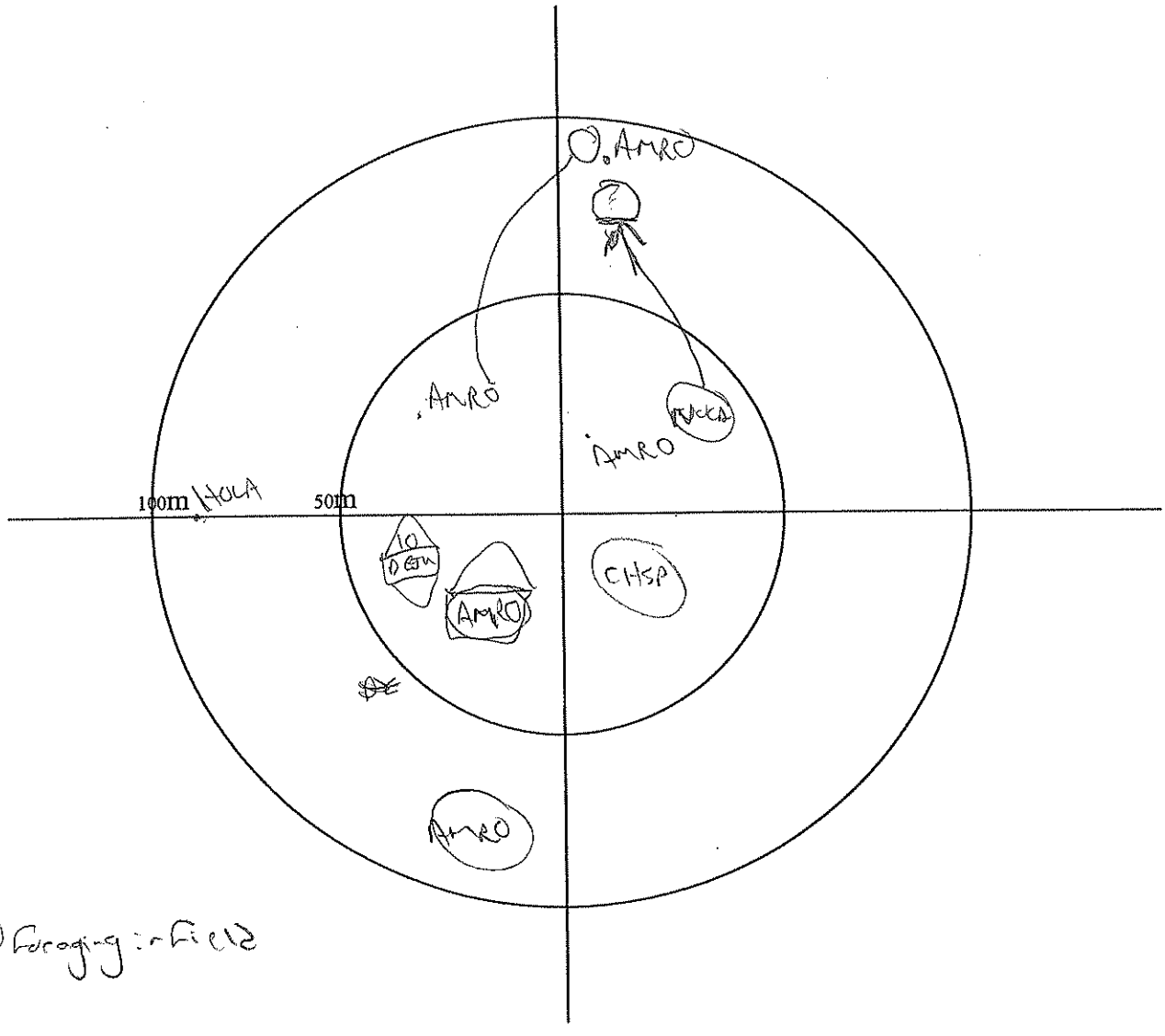
Symbols

- (RWBL) Single bird, singing/calling
- (RWBL) ← (RWBL) Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WA BS

Outside/Flythru
COGR
THRA - 20 - landing



* AMRO foraging in field

Point Count Data Form

Observer: [illegible]	Site: GES	Date: 04/02
Station ID: FP9	Visit #: S1	Start Time (HH:MM): 08:37
Beaufort Wind Scale: 1	Cloud Cover (%): 0	Temperature (°C): -1
Precipitation: —	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

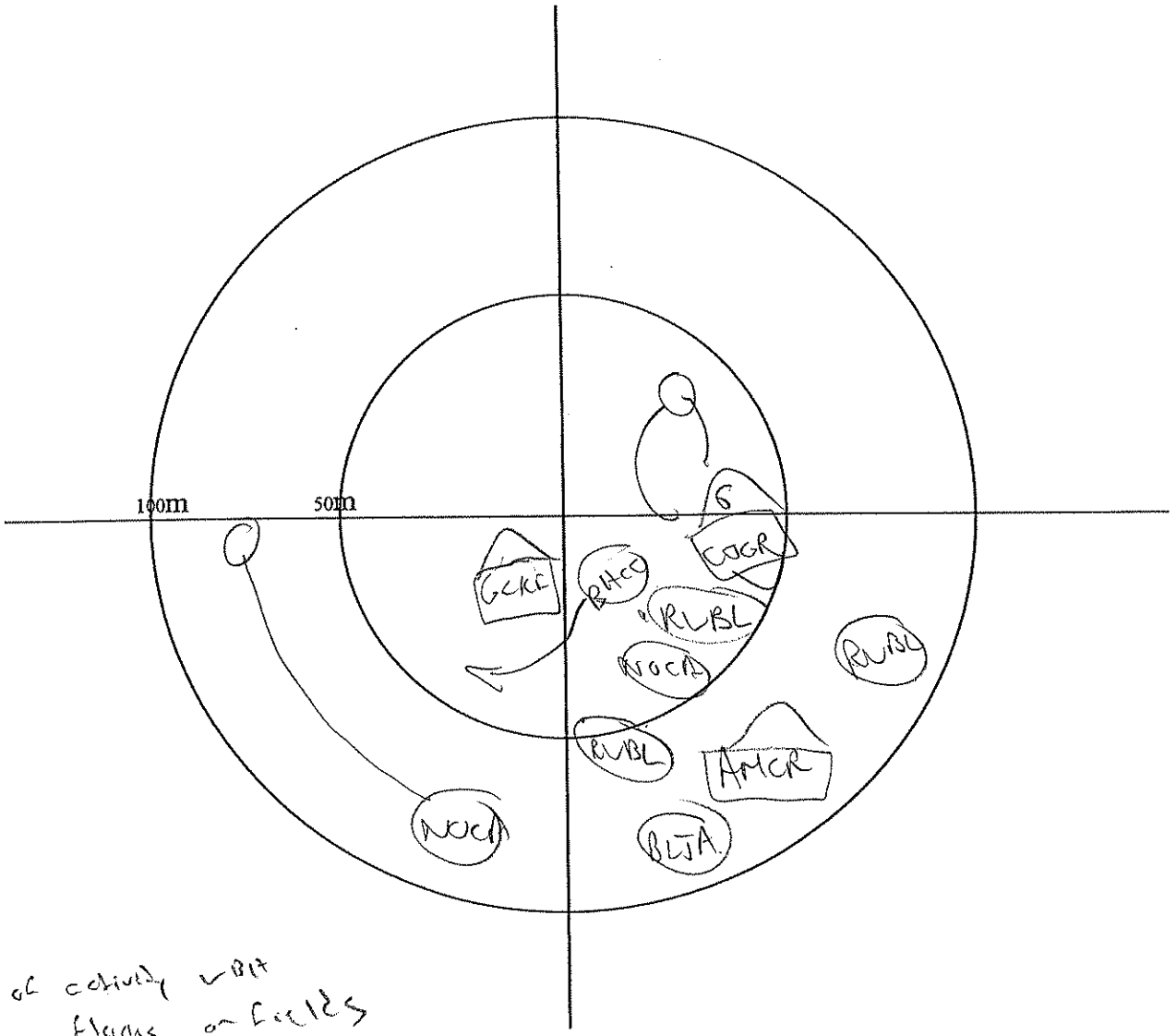
Symbols

- RWBL — Single bird, singing/calling
- RWBL ↔ RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WA BS

Outside/Flythru
CGGR - 4



- 1 cts of activity w/BIT
- RBGU flocks on fields

Point Count Data Form

Observer: Skm	Site: GES	Date: 04/02
Station ID: PR12	Visit #: 51	Start Time (HH:MM): 08:51
Beaufort Wind Scale: 2	Cloud Cover (%): 0	Temperature (°C): 0
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

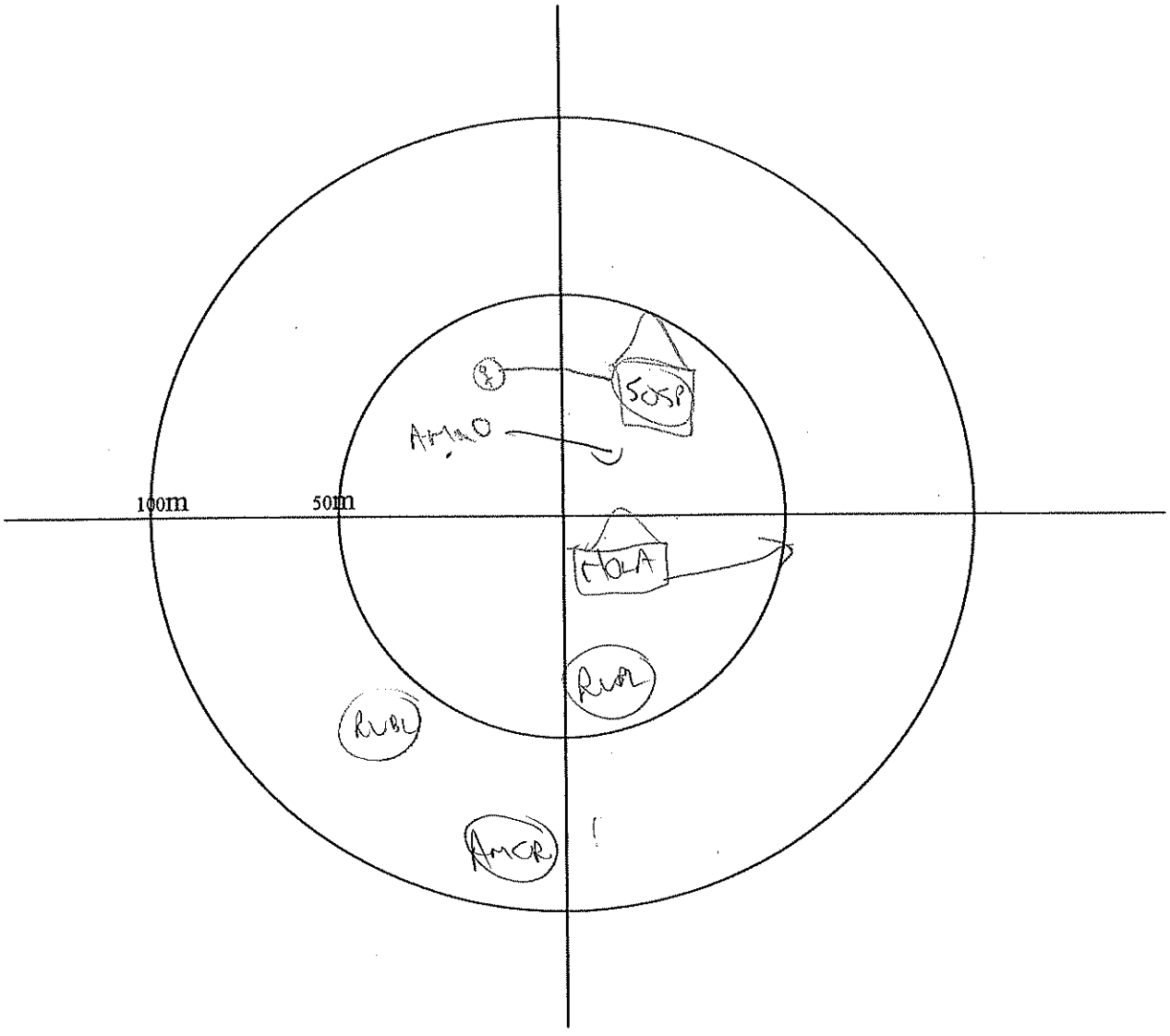
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - W BS
4 - WABS

Outside/Flythru
KELL
AMCR 1
RBGU
RW BL



Point Count Data Form

Observer: Skm	Site: GES	Date: 04/02
Station ID: FF 15	Visit #: S1	Start Time (HH:MM): 08:21
Beaufort Wind Scale: 1	Cloud Cover (%): —	Temperature (°C): — 1
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

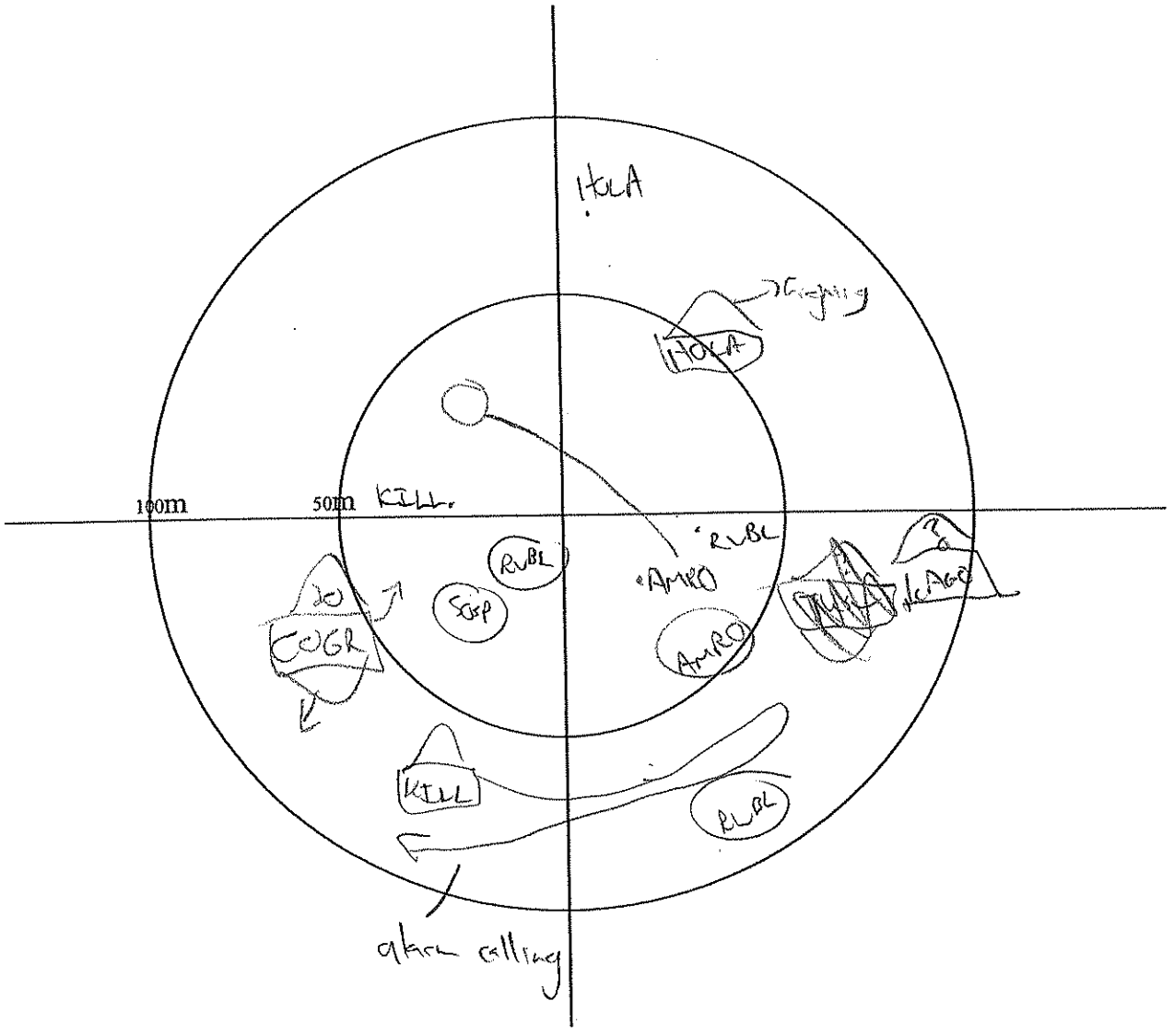
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WABS

Outside/Flythru
NorWALL
BLACK Bs: KBBS → 10
RBGU
NOWO



Point Count Data Form

Observer: Skm	Site: GES	Date: 04/02
Station ID: PF17	Visit #: S1	Start Time (HH:MM): 08:05
Beaufort Wind Scale: 1	Cloud Cover (%): —	Temperature (°C): 0
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL → ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

1 - BTH

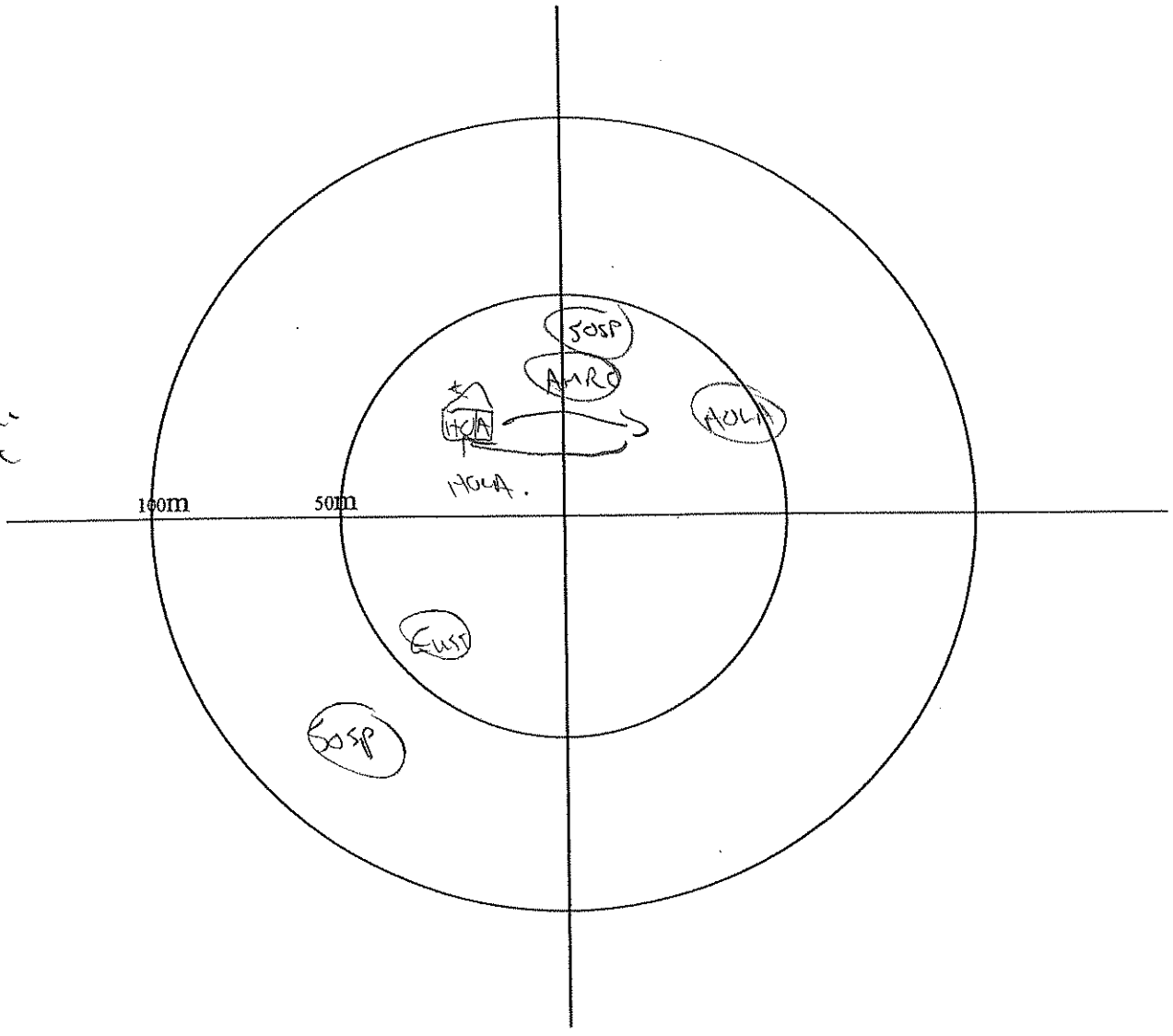
2 - close to TH

3 - V BS

4 - WABS

Outside/Flythru
NOCA
RWBL - 1
AMGR
~~Swainson's Thrush~~

* aerial fight
↳ territorial dispute



Migration Monitoring

PROJECT SITE: GESNER

Date: 04/02/08

UTM: 17N 434686E 4705759W

Wind Direction NE

Station Number M1

Air Temp. 3°C

Wind Speed 1

Time 13:35

Precipitation —

Barometric Pressure —

Observers 5km

Cloud Cover (%) 0

Elevation —

Visibility Clear

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
13:35	RUBL	1	calling	A	50-100m	WNW
13:38	MOBO	2	flying ENE	A	0-50m	N
"	BHCO	4	calling	A	50-100m	WNW
"	SOSP	1	calling	"	0-50m	NW
"	NOCA	1	"	"	0-50m	SW
13:39	THRA	4	soaring	A->B	200-500m	N
"	AMRO	1	calling	A	50-100	SW
13:40	MALL	2	flying SE	B	>1000m	S
13:42	RBGU	3	soaring, calling	B	OH	
13:47	COHA	1	soaring W	A, B	100-200m	N
13:48	THRA	1	soaring W	A	50m	W

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GES, , p. 2

Date: 04/02/08

Station Number M1

Time 13:19

Observers SKM

Any Weather Changes? ~~W~~ NW 1-2, NW @ 1452 wind 2, 3 SW

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
13:51	SOSP	1	calling	A	100-200m	N
"	AMRO	2	flying S	A	50-100m	W
"	NOCA	1	calling	A	50-100 100-200	WNW N
14:27	No New sightings → same birds calling				500-1000m	NE
14:30	TUVU	1	soaring over woodlot	A→B		
"	"	1	"	B→C	50-100m	NW
14:38	~~BAEA~~ BDLL	1	flying W	A	OH →	
14:40	TUVU	2	soaring over woodlot	B	7500 m	SE
14:43	TUVU	1	soaring W	C	50-100	N
"	ROPI	4	flying E	A	"	"
14:46	AMCR	1	flying NE	B	0-50m	N
14:54	AMCR	3	chasing / flying N (play fight)	B	>500	N
14:58	TUVU	1	soaring SW	C	7500	SW
15:00	AMCR	2	flying E	A	100-200m	S
15:05	RTHA	1	soaring	B	>500m	N
15:10	TUVU	2	soaring SE	A,B	0-50 200-500	OH SW
"	ROGR	2	soaring ENE	C	OH →	
15:15	NOFL	1	calling, flying ENE	B	0-50m	N
	TUVU	2	soaring	A,B	200-500	N

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GESNER

Date: 04/02/08

UTM: _____

Wind Direction NW

Station Number M2

Air Temp. 0

Wind Speed 2

Time 09:05

Precipitation —

Barometric Pressure _____

Observers Skm

Cloud Cover (%) →

Elevation —

Visibility Clear

A- Below (<40)
B- within (40-120)
C- Above (>120)

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
09:07	Blackbird	10	flying in several directions	A+D	<100m	N
09:10	KILLDEER	2	alarm calling + flying	A+B	OH	OH
09:12	TUVU	1	flying S	B+C	>500m	SW
09:14	AMCR	1	flying W; calling	B	100-500	S
09:25	HOLA	several	~ field, flying + foraging low	A	0-200m	all dir.
09:30	TUVU	1	flying N	A	120m	W
09:31	BL BIRD	5	flying NW	A	OH →	
09:33	TUVU	1	soaring SW	A	100-500	S
09:43	TUVU	3	soaring TUVU hanging around unknown facility bus	B	200-300	S->SW
09:48	AMCR	1	flying N	B	100-200	E
09:50	TUVU	2	soaring in thermal	D	500-1000m	S

AMRO

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GES , p. 2

Date: 04/02 Station Number M2 Time 09:51

Observers SKM Any Weather Changes? —

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
09:51	BLBIRD	6 +2+2	Flying SE	A	<50m	S
09:53	AMCR	1	Flying W	B	500-1000	S
09:54	TUVU	1	Flying SE	A	<50m	S
"	AMCR	1	soaring	B	500-1000	E
"	BLBIRD	6	Flying NW	A	<50m	ON
09:57	TUVU	1	Flying W & soaring	A+B	<50m-200-500	V
09:58	BLACKBIRD	8	Flying NW	B	200-500	SE
10:03	"	12 +5	Flying, all dir	A+B	<50 to 500m	all dir.
"	MOPO	1	Flying NE	A	<50m	N
10:08	BLBI	10	flying NW	A	<50m	N
10:15	AMCR	1	Flying NE	B	<50m	E
10:18	TUVU	1	soaring SSW, returned overhead then flew NE	B	100-200m	W
10:22	TUVU	2	soaring	B	750m	N
10:25	TUVU	4	soaring N	A&B	200-500m	SW

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

majority of movement Blackbirds flying all directions across all height zones
as of 10:05 no longer recording BlBird movement outside of large (>10) flocks

Migration Monitoring

PROJECT SITE: GGS, p. 3

Date: 04/02

Station Number M2

Time 10:27

Observers SKM

Any Weather Changes? —

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
10:32	CAGO	4	Flying WSW	B	300+	NW
10:32	"	4	" WNW	A	50m-100m	SW
10:44	TUVU	1	Soaring N E	B	200-500m	E
10:45-1055	TUVU	15	most Flying 5+ some Soaring several flocks 1-40	A→C primarily B	0-500m	N+E

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GES

Date: 04/02

UTM: —

Wind Direction SW

Station Number M3

Air Temp. 2°C

Wind Speed 1

Time 10:30

Precipitation —

Barometric Pressure —

Observers 5km

Cloud Cover (%) ~

Elevation —

Visibility clear

- site is a busier road than others.

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
11:30	SOSP	1	calling	A	30m	SW
11:20	HOLA	5	calling, moving - field	A	30-100m	all 2's
11:31	KILL	2	in wet area on field; calling → HOLA @ 11:20	A	50m	W
11:42	AMCR	4	flying E	A→B	100m	NW
11:48	EWST	5	@ house; calling	A	50m	SW
11:45	NOCA	1	@ house; calling	A	5m	SW
12:01	THRU	1	soaring S	B	100-200	NW
12:01	RBGU	2	soaring, alighting in pond	A→B	OUT →	
12:04	AMCR	2	flying N	A	100-200m	W
12:05	BHCO	1	calling	A	50m	SW
12:08	THRU	1	soaring S	C	200-500m	SW

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

17N 433027 E 4703750 N

Migration Monitoring **PROJECT SITE:** _____, p. 2

Date: 04/02 Station Number PM3 Time 12:07

Observers SKW Any Weather Changes? _____

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
12:07	EUST	7	Flying N	B	100-500m	W
12:09	RBGU	3	circling pond	A+B	50m	W
11	AMCR	1	Flying N	B	100-200	W
12:11	TUVU	1	soaring over wetlet	C	>1000m	S
12:12	AMCR	1	Flying NE	B	11	N
12:15	TUVU	4	calling	4	>1000m	SW
12:17	MOUO	2	calling	A	50m	S
12:17	RBGU	6	soaring throughout area, then to others pond	A,B,C	OH →	
11	TUVU	6	soaring E	A,B	200-500m	S
12:21	RBGU	11	flying SW	A	30m	W
12:23	AMCR	2	Flying NE	A	200-300m	N
12:25	RBGU	3	Flying SW	B	OH →	
2:26	TUVU	1	soaring	A,B	100-200m	SE
12:29	AMCR	2	perched, calling then flew ESE	A	100-200	W
12:32	RBGU	6	soaring WSW -> then returned to pond	A/B	OH → S	

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring **PROJECT SITE:** GES , p. 3

Date: 04/02 Station Number M3 Time 12:38

Observers SKM Any Weather Changes? —

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
12:41	THVU	2	soaring W/SW	B	200-500	SW
12:41	~~BLHA~~ (COM.)	1	soaring E	B	200-500 m	SW
12:43	BLBI	5	flying W	A	OH	
12:44	RBGU	3	circling pond, only 2 RBGU left on pond	A	OH	
12:47	KILL	2	flying + calling	A, close to B ?	50m	S→W
12:52	THVU	1	soaring	B/C	500-1000 m	NE
"	COCR	1	flying NW	B	50m	SW
12:58	RBGU	3	soaring, calling, 2 in pond left behind	B	100-200 m	W
12:59	THVU	1	soaring NW	A, B	200-500 m	SW
13:01	THVU	4	soaring	A, B	200-1000	NW
13:05	AMCR	5	flying ESE	A	20 —	S
13:09	RBGU	2	soaring	A, B	200-500 m	SW
"	KILL	3	circling pond	A	50m	W
"	AMCR	1	perched calling, thin flock N	A	100-200 m	S
13:12	THVU	1	soaring	A, B	200-500 -	N

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

13:13	RBGU	2	circling to land	A	200-500 m	SW
13:14	RBGU	5	soaring	B	"	SW
"	AMCR	5	flying S → thin flock NW	A/B	200m	SW

Migration Monitoring

PROJECT SITE:_____, **p.** _____

Date:_____ Station Number _____ Time_____

Observers_____ Any Weather Changes?_____

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Point Count Data Form

Observer: Skm	Site: GCS	Date: 04/24
Station ID: FF1	Visit #: 52	Start Time (HH:MM): 07:47
Beaufort Wind Scale: 1	Cloud Cover (%): 20	Temperature (°C): 10
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

1 - BTH

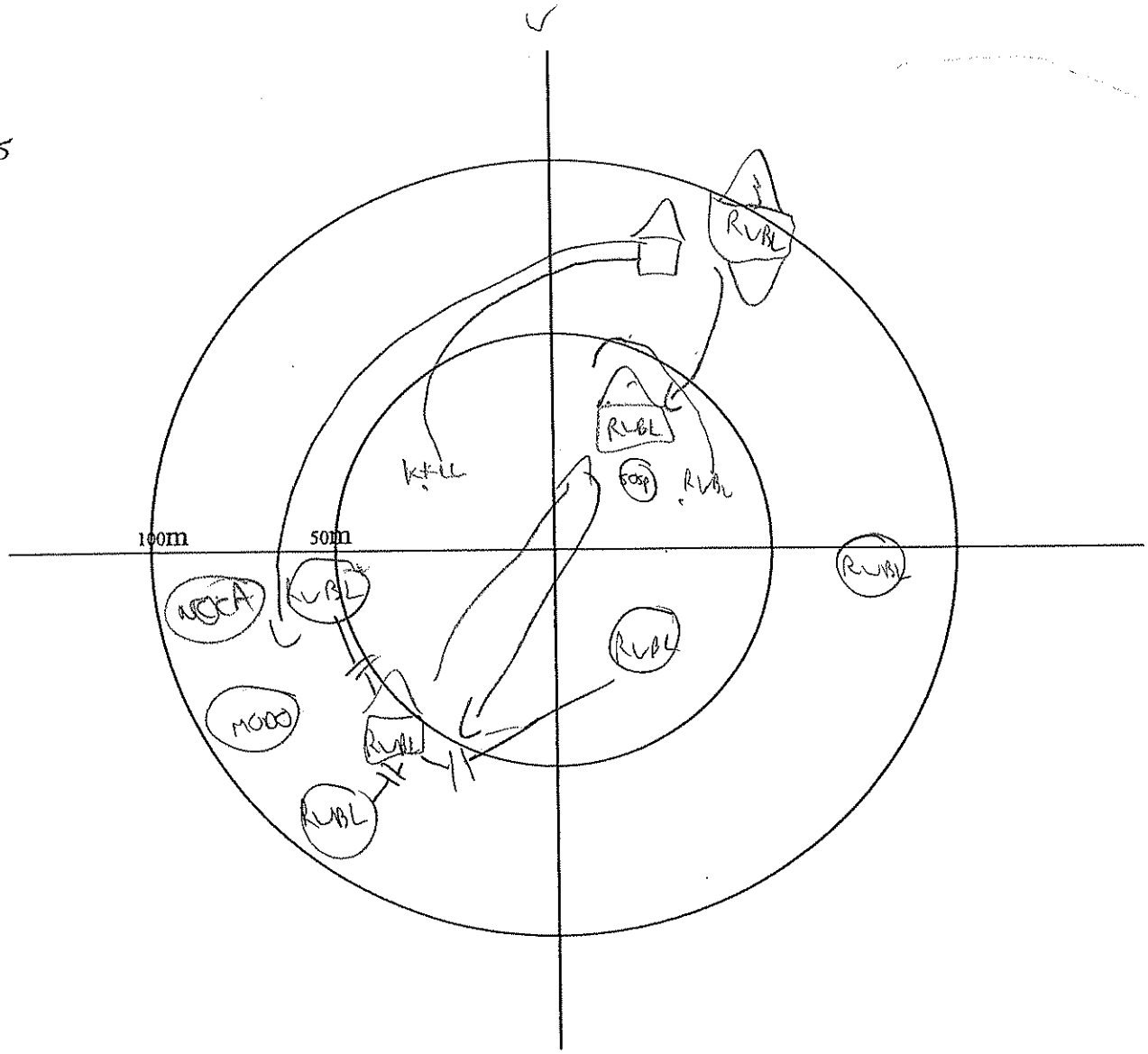
2 - close to TH

3 - WBS

4 - WABS

Outside/Flythru
CAGO - 2
MODO
DOVE

Chorus frogs



Point Count Data Form

Observer: SKM	Site: GGS	Date: 04/24
Station ID: FF4	Visit #: 52	Start Time (HH:MM): 07:32
Beaufort Wind Scale: 1	Cloud Cover (%): 20	Temperature (°C):
Precipitation: —	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

1 - BTH

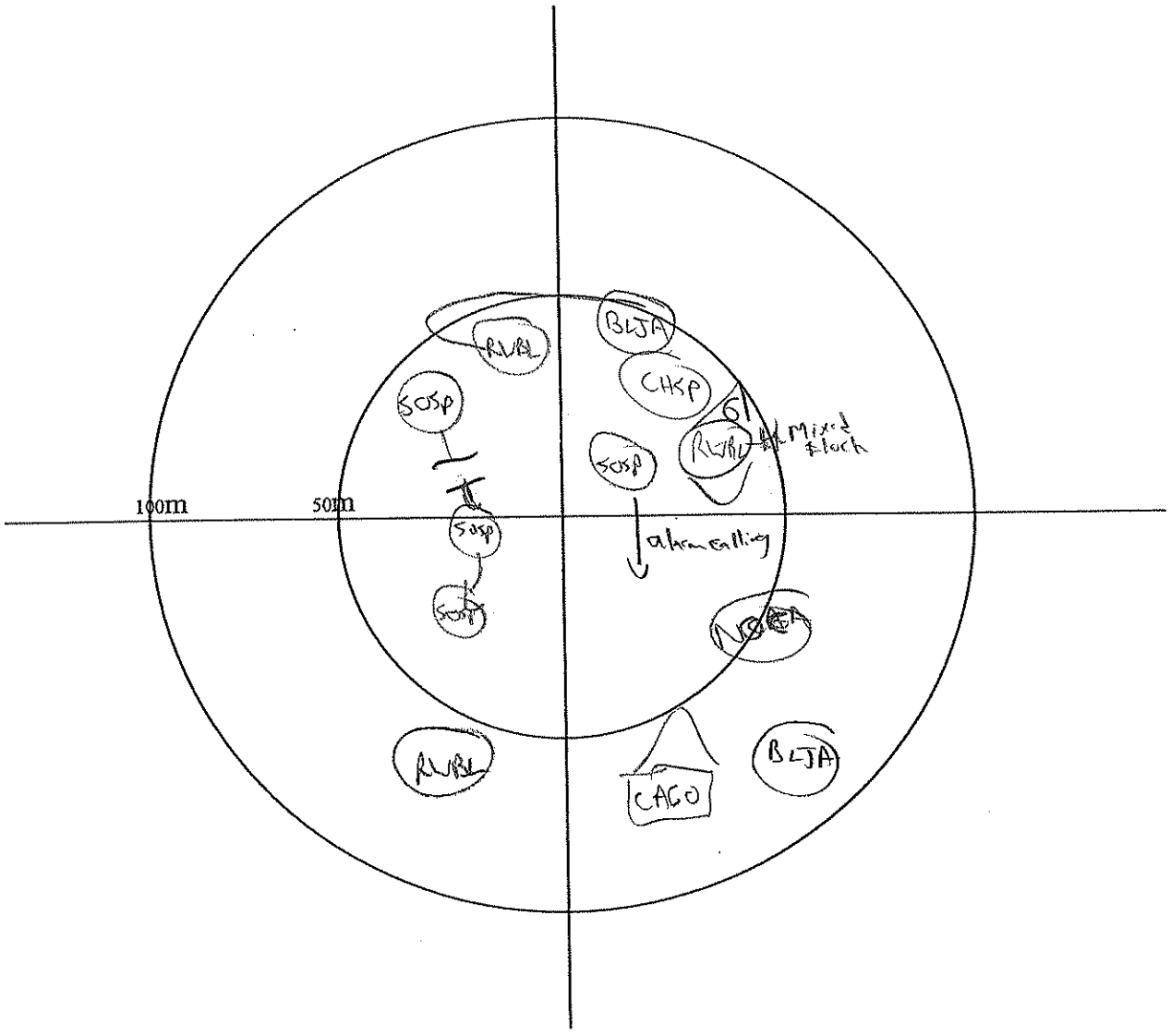
2 - close to TH

3 - U BS

4 - WA BS

Outside/Flythru
COLO - 2
AMCR - 3

Chorus frog



Point Count Data Form

Observer: Sam	Site: GGS	Date: 04/24
Station ID: FFS	Visit #: 5	Start Time (HH:MM): 08:03
Beaufort Wind Scale: 1	Cloud Cover (%): 20	Temperature (°C): 10
Precipitation: —	Visibility: —	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

1 - BTH

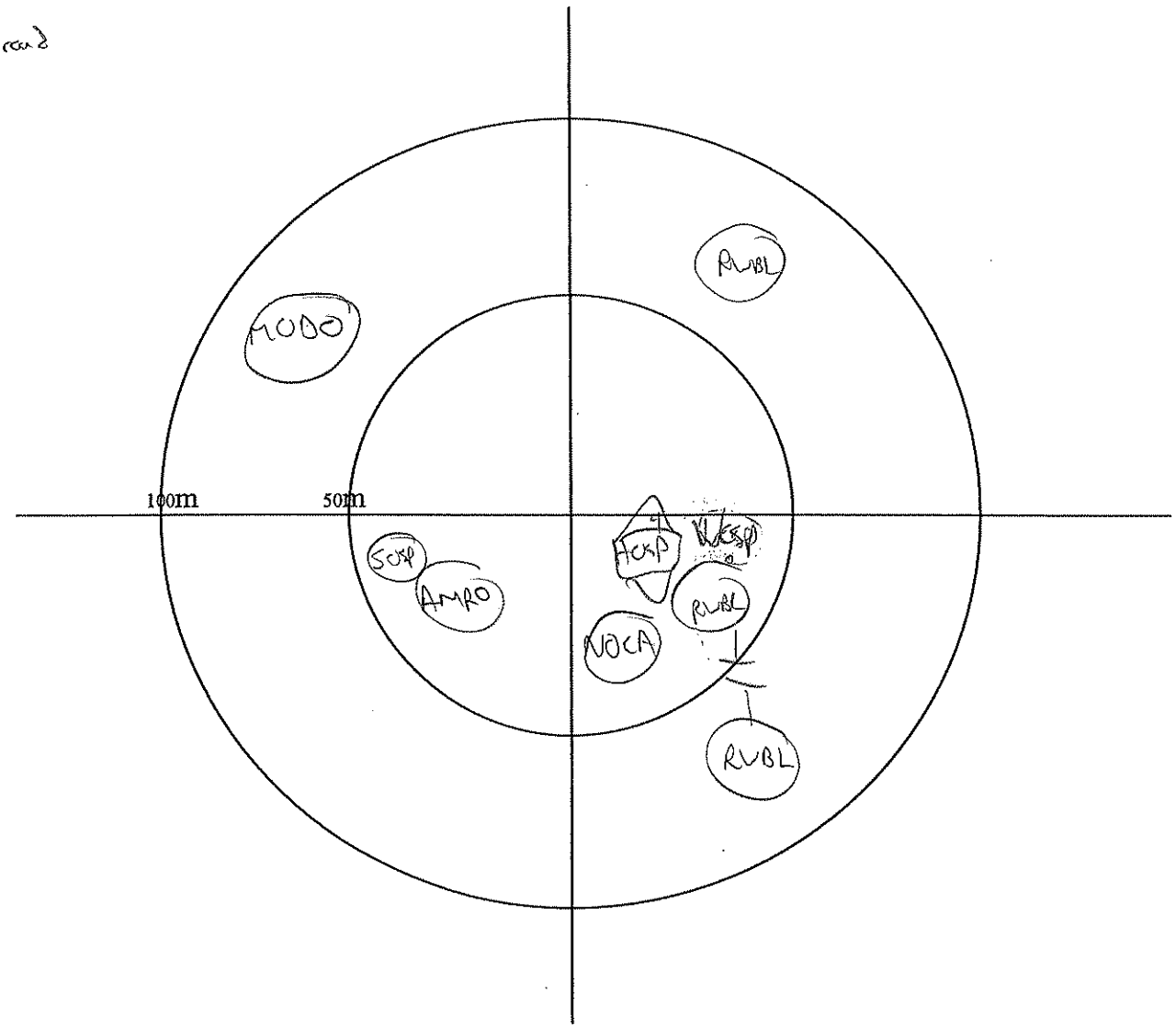
2 - close to TH

3 - WBS

4 - WABS

Outside/Flythru
AMCR
COGR
COLO - 1

Will Turkey on road



Point Count Data Form

Observer: Shm.	Site: GCS	Date: 04/21/11
Station ID: FF9	Visit #: S2	Start Time (HH:MM): 07:04
Beaufort Wind Scale: 1	Cloud Cover (%): 10	Temperature (°C): 10
Precipitation: —	Visibility: —	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RUBL ← RUBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

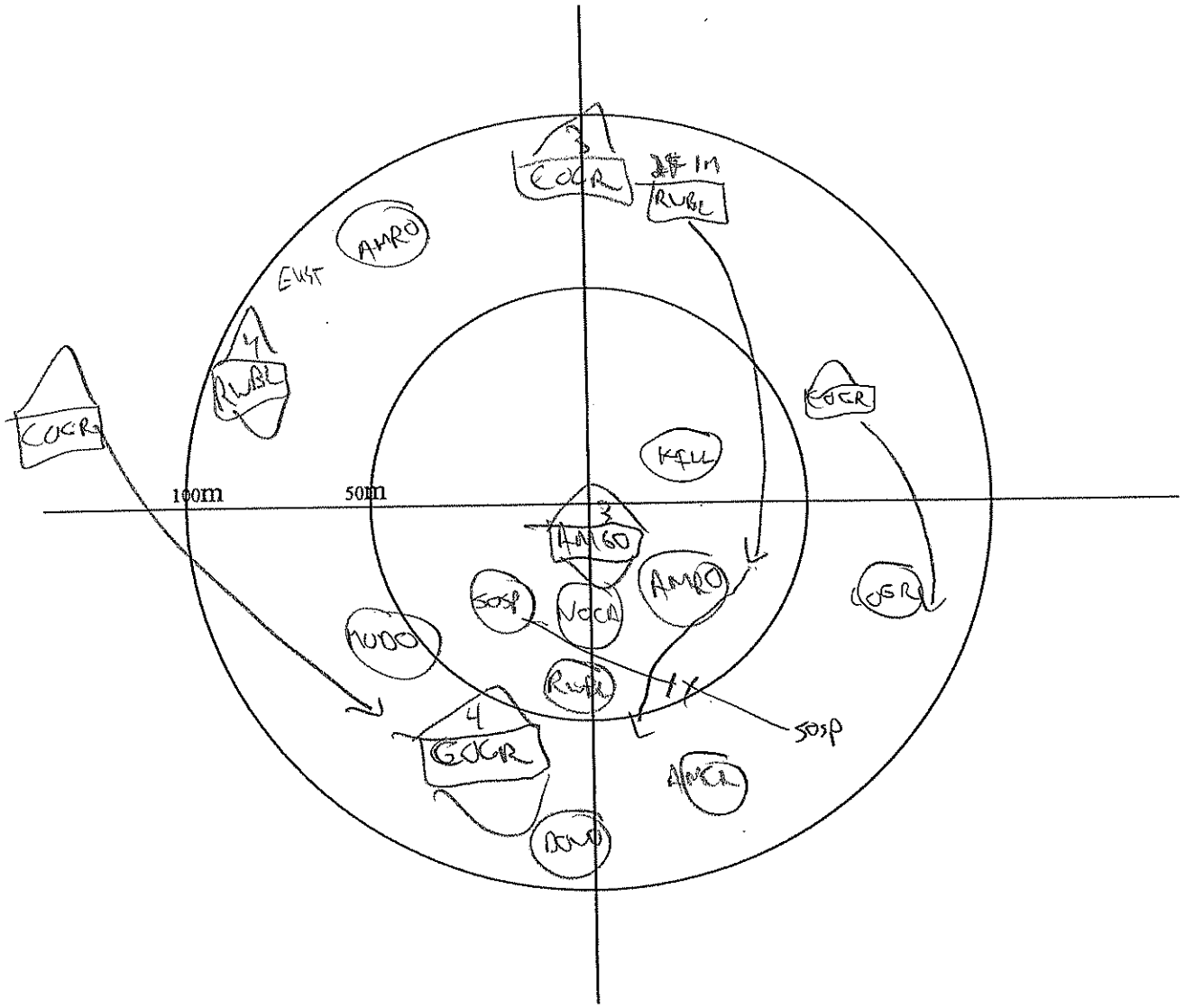
1 - BTH

2 - close to TH

3 - V BS

4 - WAY BS

Outside/Flythru
AMCR-3
HOLA
COGR-3
COCU



Point Count Data Form

Observer: Skm	Site: GGS	Date: 04/24
Station ID: FF12	Visit #: 5?	Start Time (HH:MM): 06:18
Beaufort Wind Scale: 1	Cloud Cover (%): 0	Temperature (°C): 8
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL → ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

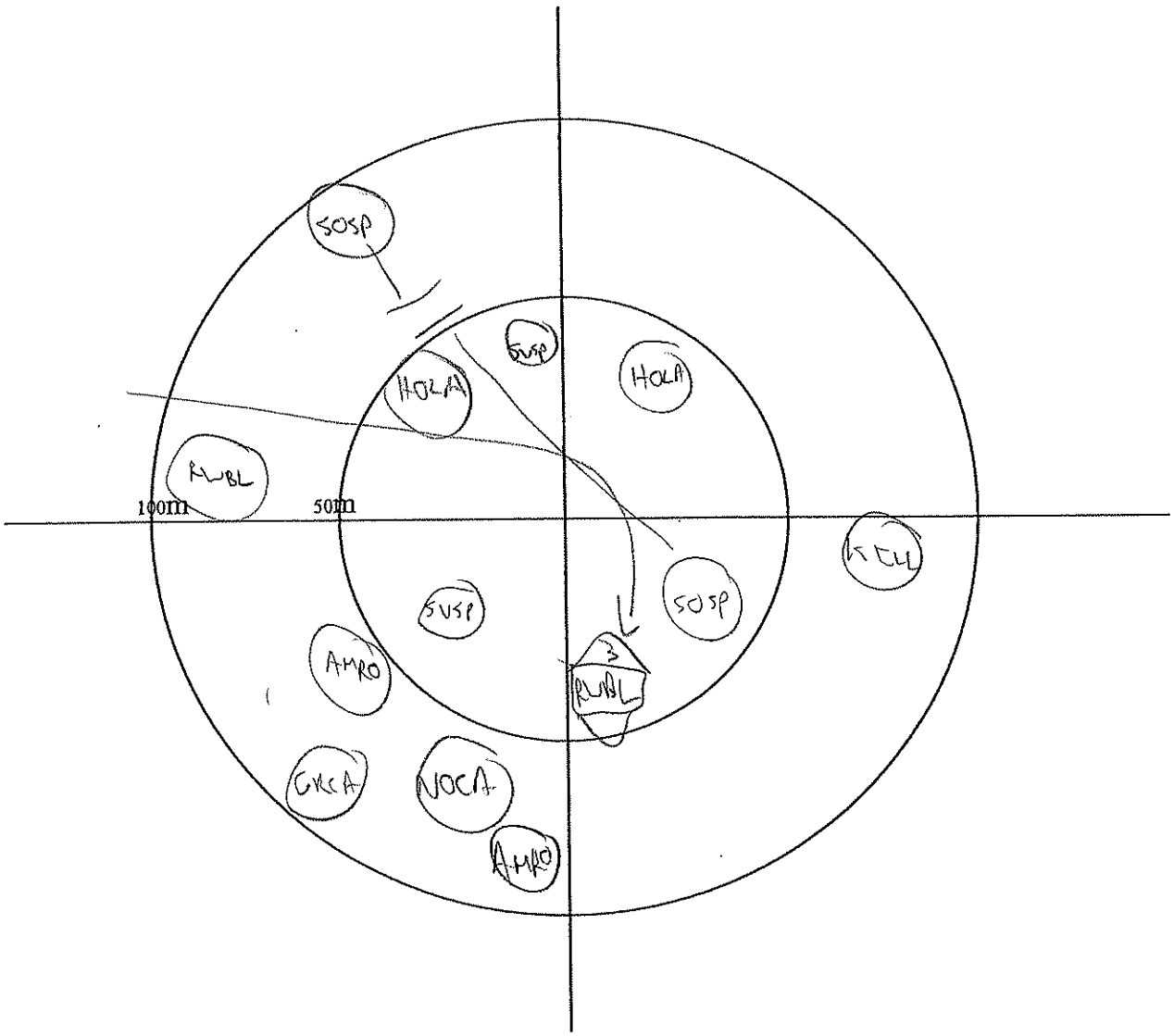
1 - BTH

2 - close to TH

3 - U BS

4 - WABS

Outside/Flythru
RWBL - 2
TURK
UNKFAL - 4



Point Count Data Form

Observer: SKM	Site: GES	Date: 6/4/14
Station ID: FT5	Visit #: S2	Start Time (HH:MM): 08:35
Beaufort Wind Scale: 1 5	Cloud Cover (%): 10	Temperature (°C): 8
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RUBL — RUBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

1 - BTH

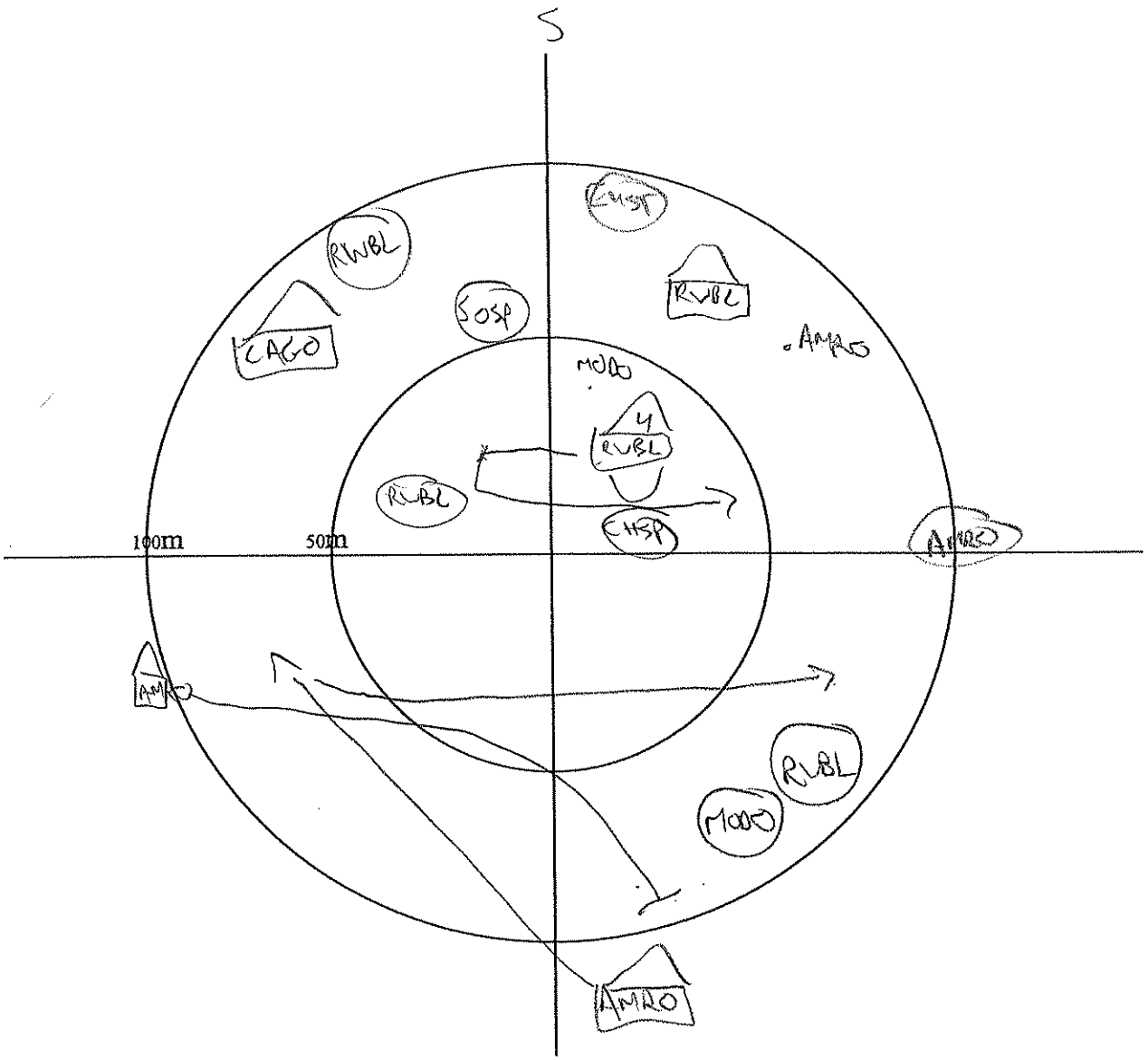
2 - close to TH

3 - V BS

4 - WAY BS

Outside/Flythru
COLO x 7
NOMO 2
CAGO-2
COGR
MALL-4
RBGU

Chaos Fog



Point Count Data Form

Observer: SKM	Site: GES	Date: 04/24
Station ID: RF17	Visit #: S2	Start Time (HH:MM): 05:49
Beaufort Wind Scale: 1	Cloud Cover (%): 10	Temperature (°C): 9
Precipitation: —	Visibility: —	
Remarks:		

Aerial Foragers	
Species	Tally

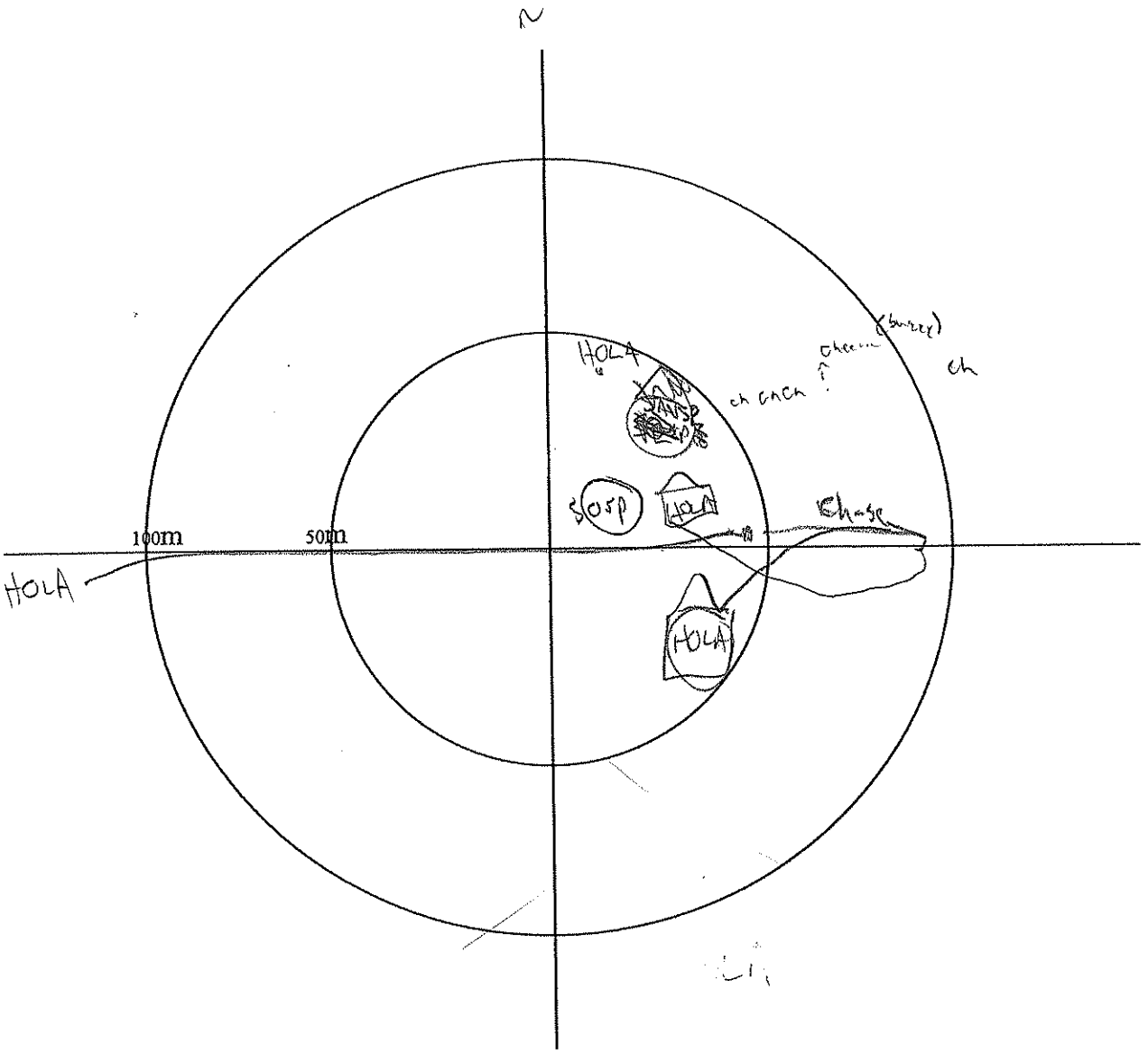
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs, but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WABS

Outside/Flythru
AMRO-2
COGR
AMCR



Migration Monitoring

PROJECT SITE: GESNER 52

Date: Apr 24/07

UTM: —

Wind Direction SSE

Station Number M1

Air Temp. 12

Wind Speed 3-4

Time 12:40

Precipitation —

Barometric Pressure

Observers Sean

Cloud Cover (%) 5

Elevation

Visibility clear

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
12:40	SOSP	1	singing	A	0-50 6-50	S
12:42	COGR	3	foraging in field	A	50-100	
12:53	TRUV	4	flying around	A-B	200-500	NNE
12:54	BHCO	1	calling → flew into N field	A	0-50	WNW
12:55	RUBL	1	calling	A	50-100	NW
12:59	TRUV	1	soaring	C	>1000	S
13:03	VESP	1	singing	A	100-200	WNW
13:04	HOLA	2	in field	A	50-100	W
13:05	CHSP	1	singing	A	400-500	S
13:07	AMRO	1	soaring	C	500-1000	W
13:10	TRUV	6	soaring over weedlot	B	1000	S
13:13	COHA	1	birds displaying over weedlot, then moved N	A	200-500	W
13:16	TRUV	1	soaring	B	1000	SE
13:30	TRUV	4	soaring in same location, likely same group	A-C	200-500	N
"	"	2	soaring	B-C	>1000	S
13:26	EUCA	1	flying	A	200-500	E
13:29	TRUV	2	soaring	B	>1000	ENE
13:32	EUST	3	flying	A	200-500	W
13:34	HOLA	2	on road, chase into field	A	0-50	W
13:35	KILL	1	calling	A	50-100	NE
13:37	TRUV	1	soaring over weedlot	B	>200-500	NNE
13:38	TRUV	1	soaring	B-C	>1000	S
13:41	HOOO	3	flying W	A	0-50	S
13:43	SVSP	1	calling	A	0-50	E

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: CES, S2 , p. 2

Date: 04/24 Station Number M1 Time

Observers SKM Any Weather Changes? Wind 4-5 Temp. ~14°

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
13:46	TUVU	4	soaring low, same spot as earlier	A-B	500-1000	NNE
13:50	TUVU	1	soaring	C	>1000	SSE
13:56	HOLA	3	aerial chase; 1 continued battles in field.	A	0-50	NW
14:00	RBCH	1	Flying S	B	>1000	ENE
"	TUVU	1	soaring N	B	>1000	ENE
"	~~RBCH~~ PHCO	1	moving in field	A	0-50	N
14:05	AMCR	1	Flying NE	A	500-1000	SE
14:09	CHSP	1	~~Flying~~ singing	A	50-100	WSW
14:10	BHCO	1	calling	A	0-50	W
14:19	47 Flock	20	Flying ESE	B	500-1000	S
14:20	HOLA	1	Flying N into field	A	0-50	ONW
14:21	TUVU	2	soaring E	A->B	200-500	SW
14:23	TUVU	2	soaring ESE	A-B	500-1000	NNE
14:31	AMCR	1	flying W	B	>1000	S
14:33	BLBI	1	Flying NW	A	100-200	W
14:35	TUVU	1	soaring W, then E over woods	A->B	200-500	N
14:37	SSHA	1	soaring S	A->B	0-50	S
14:37	TUVU	4	Soaring N	A->B	0-50	ONW

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GESNER, SD

Date: 04/12/11

Station Number M2

Time 14:45

Observers Skm

Elevation

UTM:

Air Temp. ~14°

Precipitation —

Cloud Cover (%) 10

Visibility clear

Wind Direction SSE

Wind Speed 4

Barometric Pressure

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
14:53	TUVU	1	Soaring SE	B	100-200	WSW
14:55	TUVU	2	soaring S	A→B	500-1000	E
14:57	ATHA	1	soaring N	A→C	500-1000	W
14:58	AMCR	1	flying into woodlot	A	500-1000	W
14:59	TUVU	2	soaring over woodlot	A→B	>1000	SW
15:00	KILL	1	calling + flying	A→B	0-50	E
15:01	AMRO	3	Foraging in field	A	50-100	NNW
15:03	SWSP	1	calling, then flew S into field	A	0-50	W
15:04	TRES	1	flying over field	A	100-200	W
15:05	TUVU	1	roosting W	C	>1000	S
15:07	TUVU	5	soaring ESE	B→C	>1000	SW
15:13	AMGO	3	flying w/ calling	A	0-50	OH
15:14	TUVU	2	soaring E, remained over woodlot (15:20) then flew W	B	500-1000	S
15:14	TUVU	2	soaring N	A→B	500-1000	NE
15:17	EWST	3	flying W	A	0-50	OH
15:20	AMCR	1	flying in woodlot	A	500-100	S
15:22	w? Raptor	1	soaring	B	>1000	WSW
15:25	AMCR	1	flying E over woodlot	A	500-1000	S
15:25	TUVU	2	soaring by into woodlot, then W over field	A→B	500-1000	S
15:28	TUVU	1	soaring SE over woodlot area	A→B	100-200	SW
15:29	HOLA	1	calling in field	A	0-50	S
15:29	TRES	1	flying over field	A	50-100	S
15:31	TUVU	1	soaring S	B	>1000	ENE
15:32	TUVU	1	soaring NW	A→C	200-500	E

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GGSNER, S2 , p. _____

Date: 04/24

Station Number M2

Time _____

Observers SKM

Any Weather Changes? —

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
15:35	THVU	1	soaring over field E→W, then N	A → B	100 - 200	E
15:37	THVU	1	soaring over woodlot	B	7 1000	W
15:38	MODO	2	perched on wire	A	100 - 200	W
15:41	THVU	1	soaring over woodlot ESE	B	500 - 1000	N NE
15:45	EUST	1	flying around houses	A	~~200~~ - 500	NW
15:47	THVU	1	Soaring S	B → C	200 - 500	N
15:49	THVU	3	soaring	A → B	500 - 1000	SE
"	THVU	1	Soaring	B	500 - 1000	S
"	"	2	soaring	B	> 1000	SW
"	"	1	Soaring	B	500 - 1000	W SW
15:54	THVU	1	soaring U over woodlot	A	~~500 - 1000~~	S
15:56	MODO	2	flushing from field, fly U	A	0 - 50	S
15:57	THVU	1	soaring U over woodlot	A	500 - 1000	S
"	HOLA	1	flying N	A	0 - 50	W
15:58	HOLA	2	flying in field	A	100-200	NE
16:00	THVU	1	soaring S	B	500 - 1000	S W
16:05	THVU	3	soaring	B → C	> 1000 m	SE
16:12	Wato fowl sp?	N17-20	flying in circles over woodlot N 5 min	B	500 - 1000 m	W
16:17	THVU	2	soaring E field	A → B	300 - 1000 m	W + S
16:23	HOLA	1	flying N in woodlot	A	0 - 50 m	E
16:27	NOHA	1	soaring ESE over field	A → B	200 - 500 m	S
16:28	THVU	1	flying NW	A	200 - 500	SW
16:31	THVU	1	soaring S	B → C	200 - 500	W
16:32	THVU	2	over woodlot	A → B	500 - 1000	S
16:34	THVU	1	soaring	B → C	500 - 1000	W
"	"	1	"	B	7 1000	NW
16:35	TRES	2	over field near house (boxes?)	A	200 - 500	E
16:41	THVU	2	over woodlot	A	500 - 1000	S

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GESNER 52

Date: 04/24

UTM:

Wind Direction SSE

Station Number M3

Air Temp. 12

Wind Speed 3

Time 1015

Precipitation —

Barometric Pressure

Observers SKr

Cloud Cover (%) 10%

Elevation

Visibility clear

Note: Pond is no longer wet

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
10:19	HELA	4	calling from field	A	0-50	E
10:20	RUBL	1	Flying S	A	0-50	V
10:23	AMRO	1	in field foraging W	A	50-100	NW
10:23	COGR	6	Flying	A	200-300	SW
10:27	NOCA	1	singing	A	200-500	E
10:29	AMCR	2	Flying NW	A - B	200-500	S
10:32	SVSP	1	resting? on ground	A	0-50	OH
10:35	TUVU	1	soaring	B	>1000	WSW
10:38	"	1	soaring S	B	0-50	OH
10:38	"	2	soaring W	B	200 a	W
"	BLPI	1	Flying SW	A	50-100	N
10:46	COGR	3	Flying S	A	0-50	E
10:49	BACO	1	perched, then flew WSW	A	0-50	S
10:52	AMCR	1	Flying W; molting RTHA → flying NW	A → B	200-500	W
10:55	TUVU ?	2	soaring	C	>1000	E
10:56	TUVU	1	soaring S	B→C B	200-500 71000	SE SE
10:57	CRBL	1	Flying S			
11:00	TUVU	4 2 2	soaring	C	71000	ESE 2→S 2→SW
11:05	TUVU	3	soaring over wetland	B→C	71000	S

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring **PROJECT SITE:** GESNER 52 , p. 2

Date: 04/24 Station Number M3 Time

Observers 5km Any Weather Changes? —

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
11:11	RTAA	1	soaring E still flying @ 11:17	C	500-1000	NE
11:11	TUVU	2	soaring S	C	200-500	E
11:13	vulture?	~25	loose flock flying E	B	>1000	S
11:15	TUVU	2	soaring over woodlot → still present @ 11:25 E + 1 TUVU	B-C	>1000	↑
[redacted]	COGR	3	flying N	A	200-500	E
11:25	EAST	1	singing from shrubbery	A	200-500	E
11:32	TUVU	6	soaring W, 4 flying E @ 11:37	A→C	500-1000	NNE
11:34	TUVU	1	soaring N, then returned S @ 11:44	B→C	>1000	E
11:38	RTAA	1	soaring over woodlot	B	500-1000	E
11:41	COGR	3	flying S	A	0-50	OH
"	TUVU	1	soaring S	B	>1000	U
11:48	TUVU	4	soaring, then S over woodlot, then U	A→B→C	500-1000	NE
11:49	TUVU	1	soaring S over woodlot	B	500-1000	E
11:55	HOLA	2	acrial flight display	A	0-50	N
11:55	KILL	1	calling	A	100-500	SSW
11:57	EAST	3	flying SW	A	0-50	OH
11:59	COGR	1	flying WSW	A-B	0-50	N
12:06	COGA	1	mobbing AMCR with	A	200-500	S
12:06	AMCR	1	flying	A	200-500	S
12:10	TUVU	2	soaring	B	>1000	S
12:11	"	3	"	A→B	>1000	SSE
12:13	"	2	"	B→C	>1000	E

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Point Count Data Form

Observer: Skm	Site: GES	Date: 05/19
Station ID: RF1	Visit #: 55	Start Time (HH:MM): 07:15
Beaufort Wind Scale: 1	Cloud Cover (%): 0	Temperature (°C): 16
Precipitation: ———	Visibility: fog	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ↔ RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

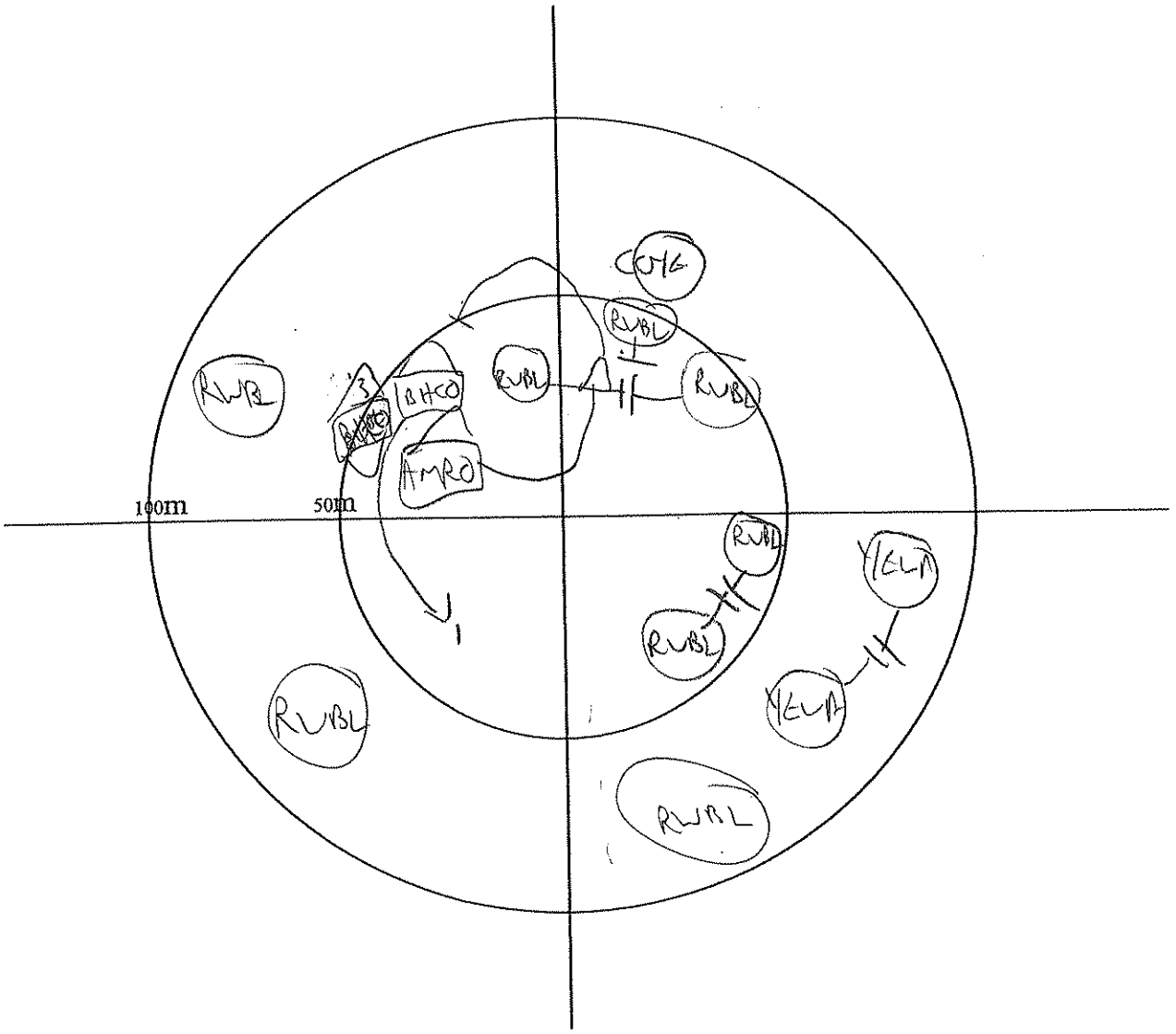
1 - BTH

2 - close to TH

3 - WBS

4 - WABS

Outside/Flythru
AMCR



Point Count Data Form

Observer: Skm	Site: GES	Date: 05/13
Station ID: AF-4	Visit #: 53	Start Time (HH:MM): 07:07
Beaufort Wind Scale: 1	Cloud Cover (%): 0	Temperature (°C): 10
Precipitation: —	Visibility: —	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

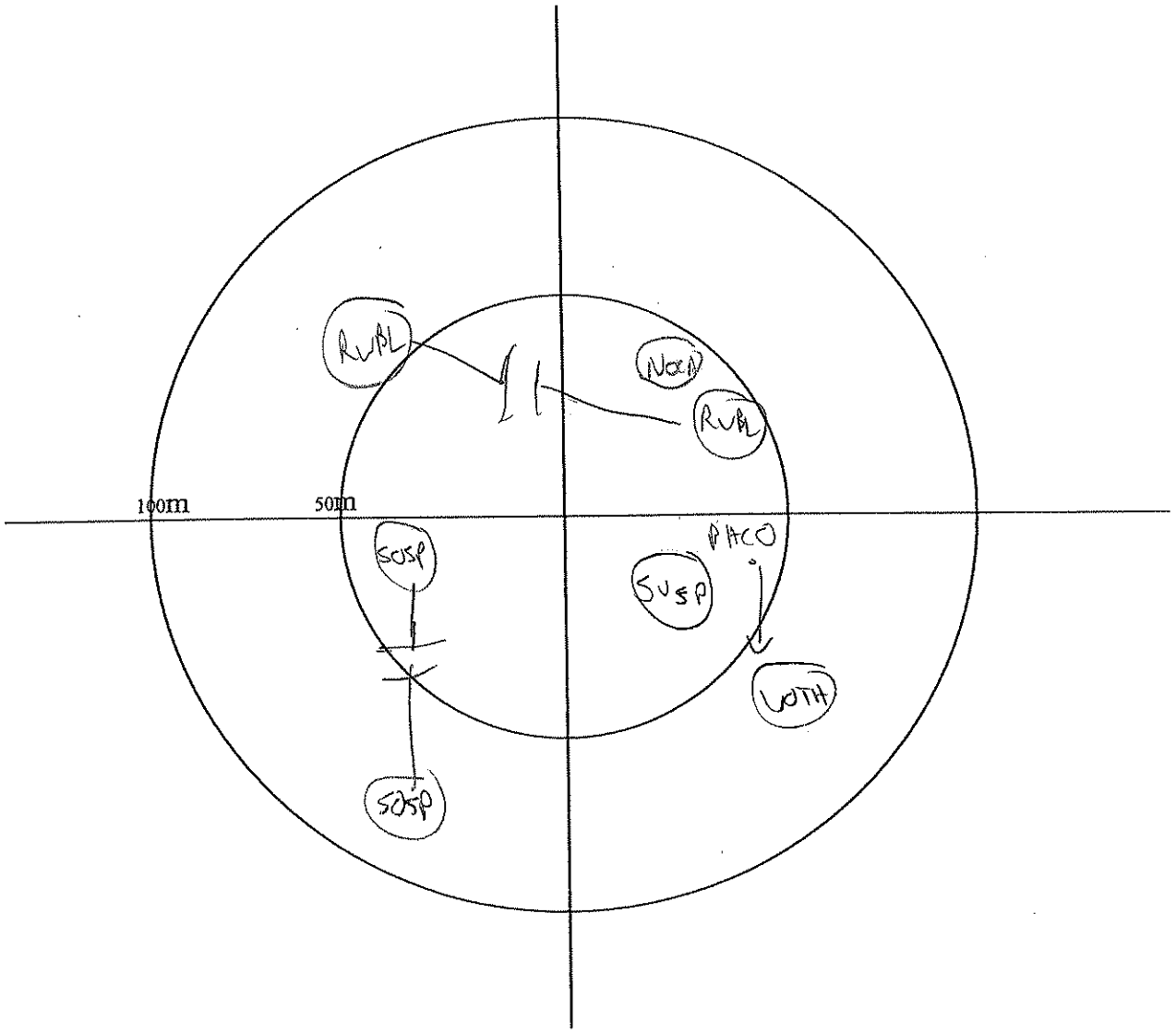
1 - BTH

2 - close to TH

3 - U BS

4 - WABS

Outside/Flythru
AMCR - 2
1 LJA
CACO - N5
lx+LL



Point Count Data Form

Observer: Shm	Site: GES	Date: 05/11
Station ID: FF5	Visit #: 53	Start Time (HH:MM): 0645
Beaufort Wind Scale: 1	Cloud Cover (%): —	Temperature (°C): 10
Precipitation: —	Visibility: Fog	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

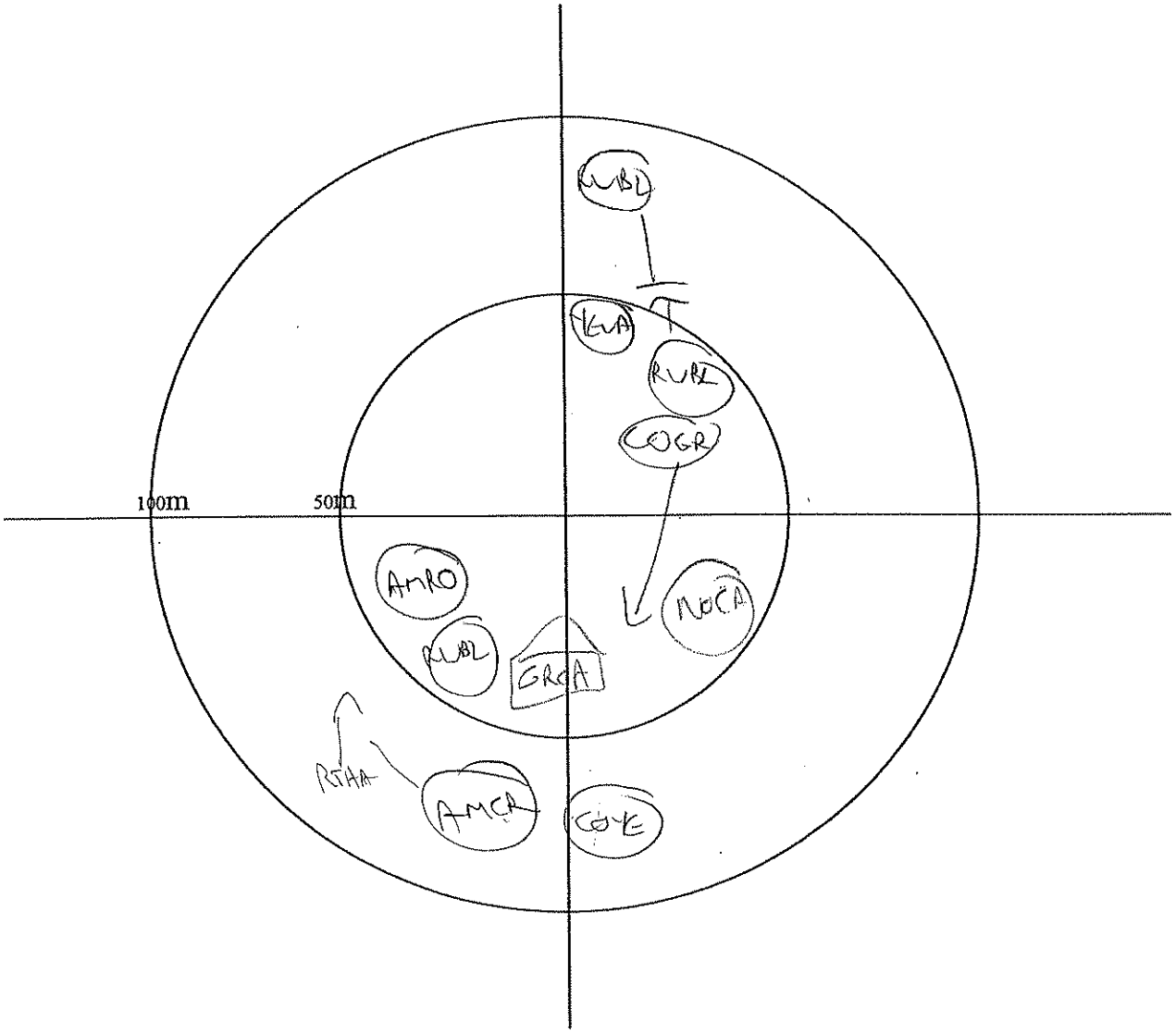
1 - BTH

2 - close to TH

3 - UBS

4 - WABS

Outside/Flythru
COGR-4



Point Count Data Form

Observer: SKM.	Site: GCS	Date: 05/13
Station ID: FF9	Visit #: 5	Start Time (HH:MM): 05:14
Beaufort Wind Scale: 1	Cloud Cover (%): 0	Temperature (°C): ~10
Precipitation: —	Visibility: fog	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

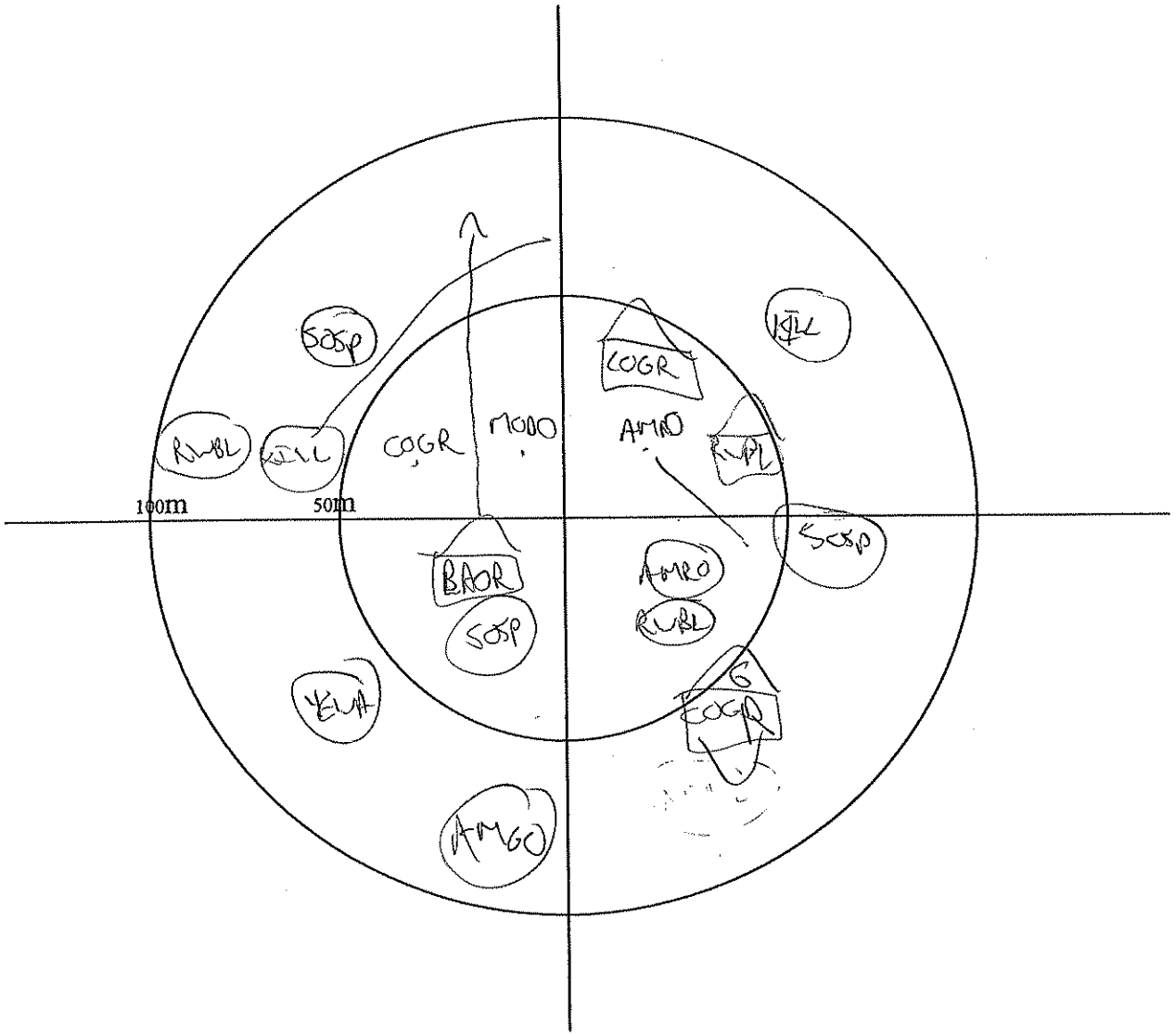
1 - BTH

2 - Close to TH

3 - V BS

4 - WA BS

Outside/Flythru
CAGO



Point Count Data Form

Observer: Sam.	Site: LCS	Date: 05/13
Station ID: FF12	Visit #: 3	Start Time (HH:MM): 06:32
Beaufort Wind Scale: 1	Cloud Cover (%):	Temperature (°C): 10
Precipitation: —	Visibility: Fog	
Remarks:		

Aerial Foragers	
Species	Tally

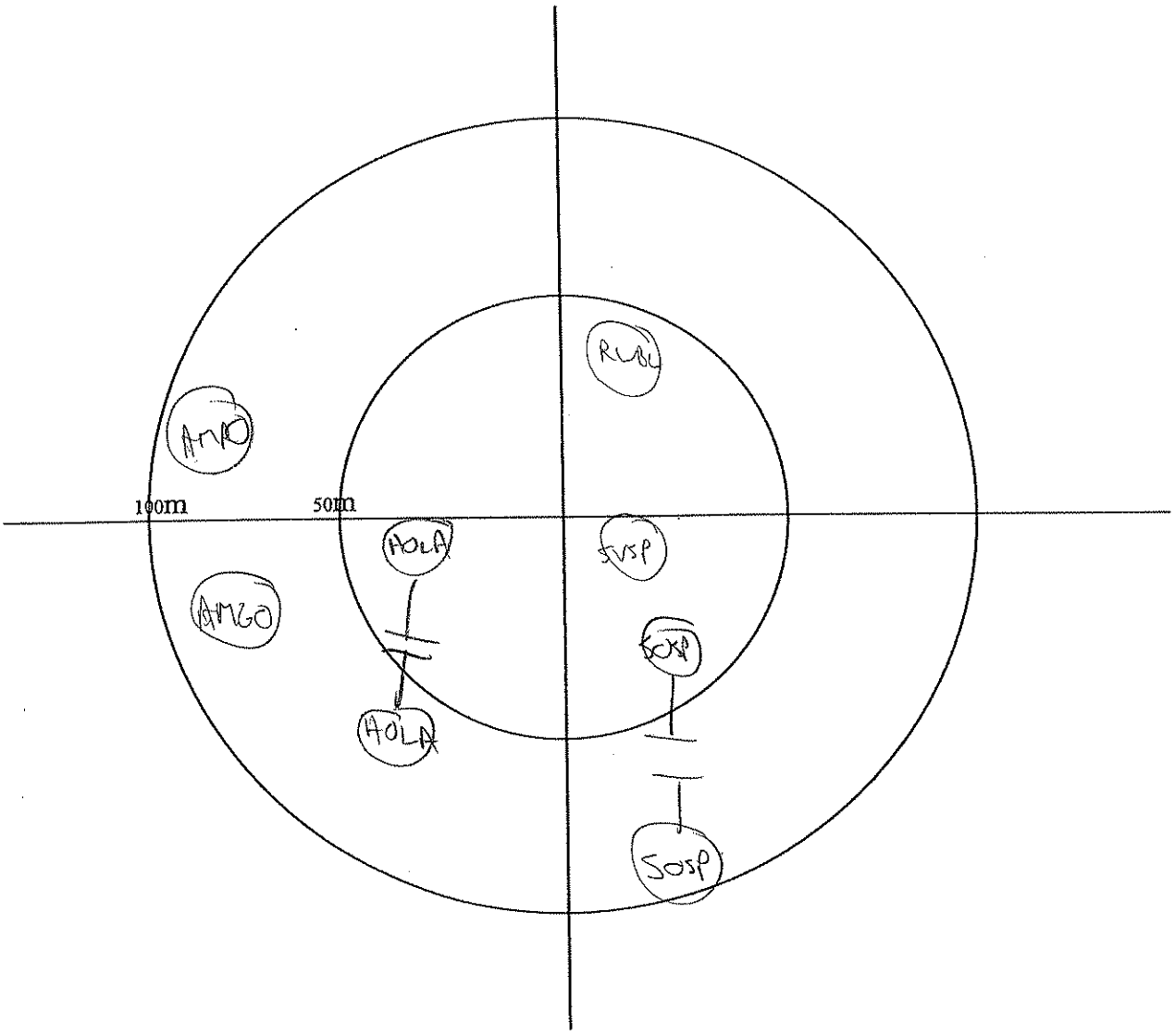
Symbols

- RWBL — Single bird, singing/calling
- RWBL → ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WABS

Outside/Flythru
AMGO
AMCR - 2
COGR
CACO Flock ~40
BASW
MOBO



Point Count Data Form

Observer: Skw	Site: GES	Date: 05/13
Station ID: FF 15?	Visit #: 53	Start Time (HH:MM): 07:31
Beaufort Wind Scale: 0	Cloud Cover (%): 0	Temperature (°C): 10
Precipitation: —	Visibility: Gage 3.00	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RUBL → ← RUBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

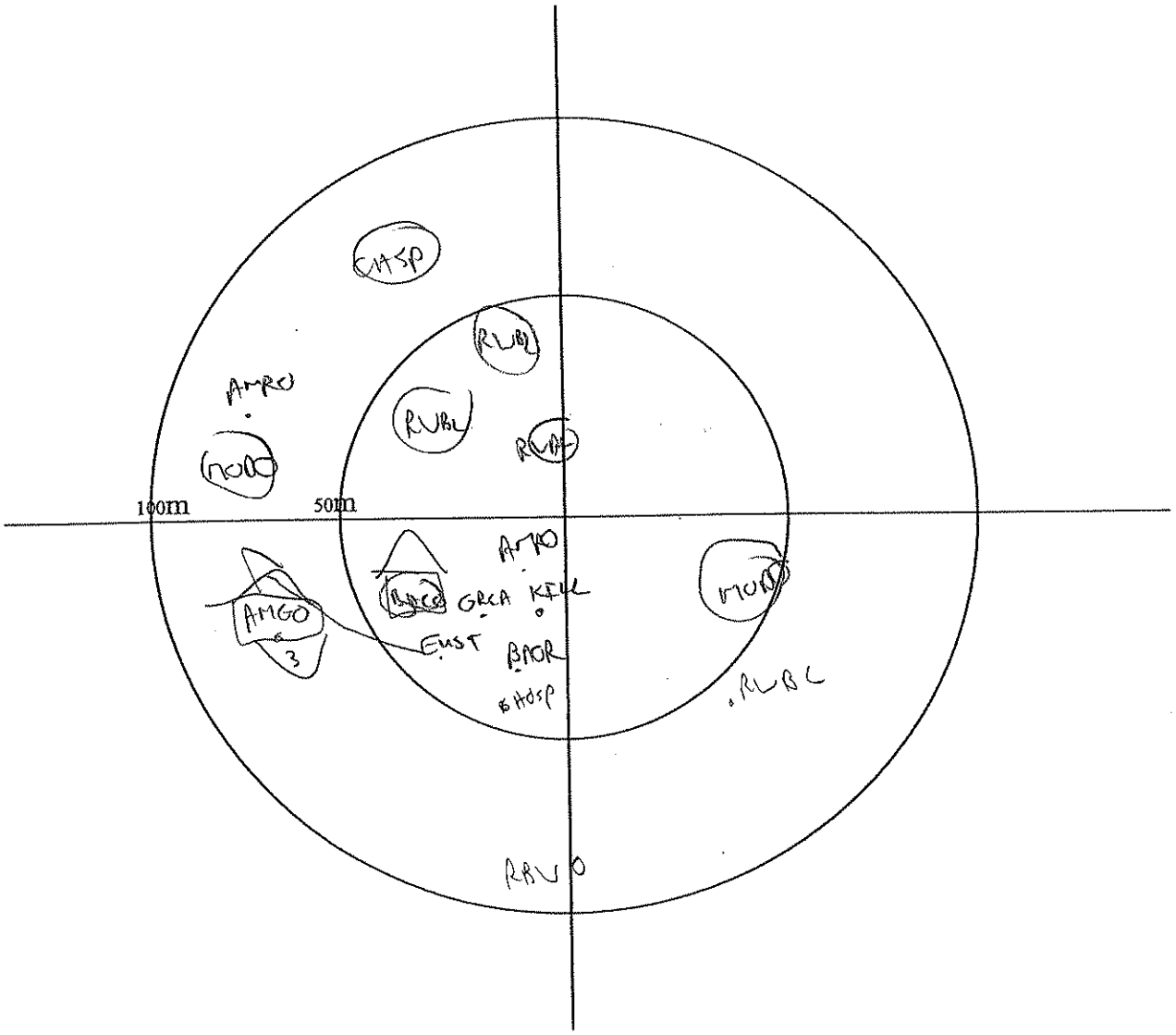
1 - BTH

2 - Close to TH

3 - V BS

4 - WABS

Outside/Flythru
CALO
COGR - 6
KILL



Point Count Data Form

Observer: Skm	Site: GES	Date: 05/13
Station ID: FF17	Visit #: 53	Start Time (HH:MM): 05:59
Beaufort Wind Scale: 1	Cloud Cover (%): ?	Temperature (°C): ~10
Precipitation: ~	Visibility: Fog; poor	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

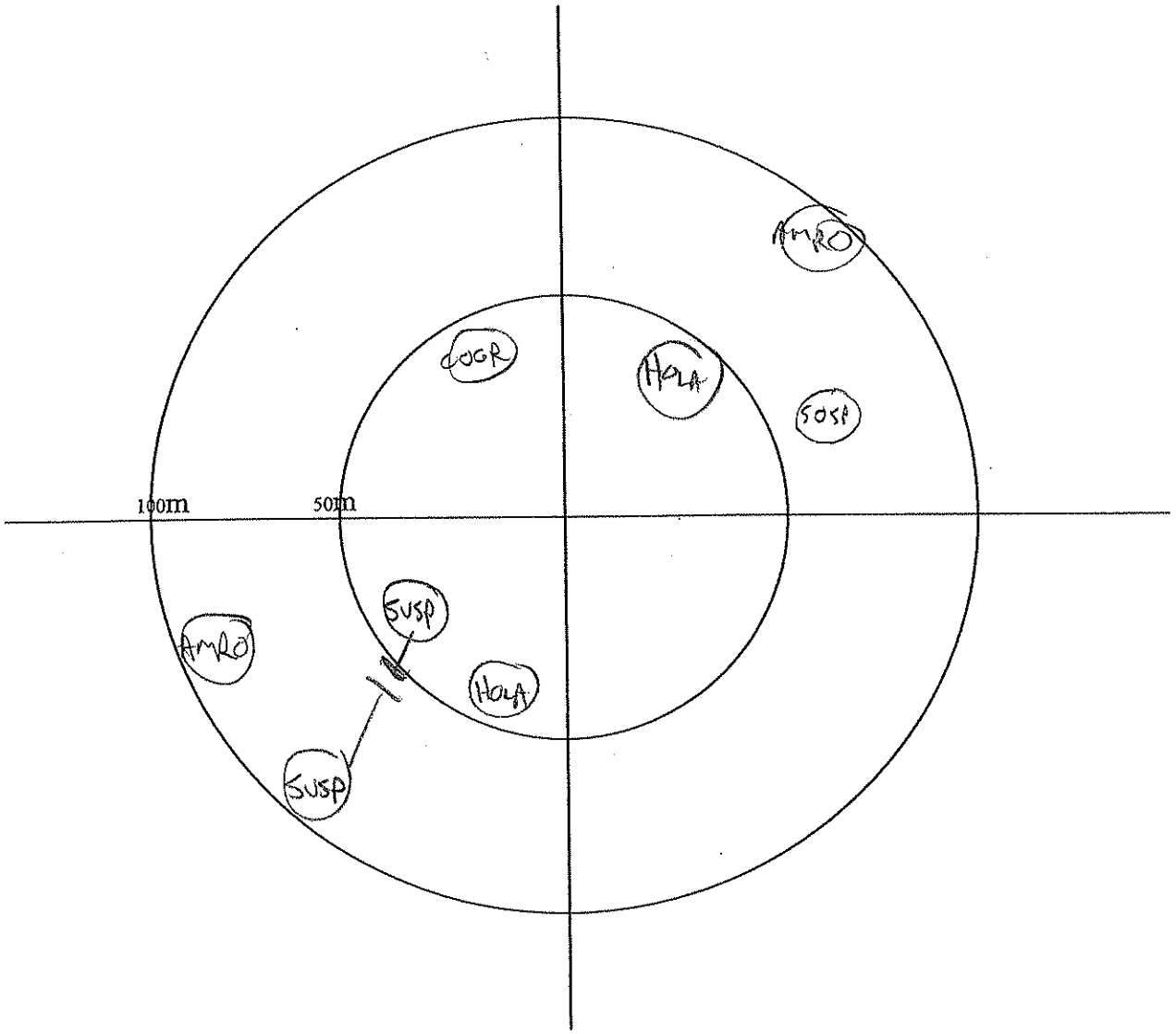
1 - BTH

2 - close to TH

3 - V BS

4 - WABS

Outside/Flythru
AMRO
HOLA
AMCR



Migration Monitoring

PROJECT SITE: _____

Date: 05/13 | UTM: _____ | Wind Direction: —

Station Number: M1 | Air Temp.: ~14 | Wind Speed: 0

Time: 09'30 | Precipitation: — | Barometric Pressure: _____

Observers: GM | Cloud Cover (%): 0

Elevation: _____ | Visibility: clear

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
09:20	SUSP	1	perched	A	0-50m	SW
	TUVU	1	roaring	A	100-200	ENE
	"	2	soaring	B-C	200-500	S
	MODA	3	in field; foraging	A	0-50	W
	LOGR	1	flying	A	51-100	E
09:35	AMRO	1	singing in woods	A	50-100	NW
"	NOCA	1	singing	A	100-200	NW
"	GRCA	1	singing	A	1-	NW
09:43	RUBL	~5-6	singing	A	0-50	all dir.
09:50	CHSP	2	flying	A→B	0-50	OH
09:52	SOSP	1	singing	A	0-50	S
09:50	NOCA	1	singing	A	50-100	W
10:03	TUVU	2	over woodlot	B	200-500	S
10:05	CEDA	2	flying in	A	50-100	SW
10:08	ROBI	1	singing in tree	A	0-50	E
"	AMCR	1	calling	A	200-500	S
10:10	BARS	2	foraging over field; continuous	A	0-50	S
10:13	RUBL	1	flying	A	0-50	OH
"	AMRO	4	in field	A	0-50	W
10:16	TUVU	2	over woodlot	A-B	200-500	NNE
"	EABL	1	flying	A	0-50	W
10:21	TUVU	5	soaring low over woodlot	A	200-500	S
10:22	AMRO	1	flying	A	50-100	S
10:23	TUVU	3	soaring	B-C	0-50	SW
10:32	MODO	1	singing	A	100-200	W

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: CEGWEP, p. 2

Date: 05/15

Station Number M1

Time 10:39

Observers SKM

Any Weather Changes? — Wind 1 SSW

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
10:39	BLJA	2	Flying N	A-B	50-100	N
10:40	RTHA	2	soaring (Circling), gen. moving NNE	A-B-C	0-50	S
10:49	PUMA	1	soaring; calling	A-B	0-50	N
10:49	TRES	1	soaring	B	0-50	N
10:55	TUVU	2	Sitting on W Flying W	D-C	500-1000	E
10:56	DOWO	1	Flying W	A	50-100	NW
10:59	AMCO	1	Flying S	A	0-50	W
11:05	COGR	1	Flying W	B	50-100	N
11:08	TUVU	1	soaring (as RTHA, not moving in any dir.			
11:12	RTHA	2	slightly on level lot beside each other w/ male & female pair nest	A	500-1000	N
"	AMCO	NWO	flight from vicinity of RTHA	B	500-500	NE
11:23	BLJA	1	Flying W	A	0-50	NE
	Peacock Pair	crossed	Mac Hessen Line			

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GESNER

Date: 05/13

UTM:

Wind Direction SSW

Station Number 7 2

Air Temp. ~17

Wind Speed 2

Time 13:00

Precipitation —

Barometric Pressure

Observers SKM

Cloud Cover (%) 0

Elevation

Visibility clear

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
13:00	GRCA	1	singing	A	100-200	NW
	HOLA	2	in field	A	0-50	N
	DOWO	1	drumming	A	100-200	W
	SWSP	1	singing, then flies into field	A	0-50	E
13:11	BOBO	1	singing	A	100-200	SE
13:14	BARS	1	flying over field	A	0-50	N
"	BHCO	1		A	"	
13:20	BHCO	4	foraging in field	A	50-100	NW
	TRES + NRWS	2+6	Foraging over field, swallows regularly moving over field	A-C	50-100	S
13:22	EAST	1	Flying S	A	0-50	E
13:27	TUVU	1	Soaring N	B	100-200	W
13:28	RWBL	1	flying W	A	0-50	S
"	COGR	2	Flying in field	A	0-50	S
13:31	"	2	Flying N	A	100-200	SE
13:33	AMGO	1	flight call	?	?	S
13:36	MODO	2	flew into field	A	0-50	SW
13:37	AMRO	1	perched	A	100-200	W
13:43	HOLA	1	flight display, circling the dive to ground	C→A	100-200	SE
13:48	TUVU	1	soaring ESE, still present @ 13:53	B→C	500-1000	NNE
13:52	HOLA	2	singing in field	A	0-50	SE
13:53	TUVU	6	soaring	B	500-1000	NE
13:54	"	1	soaring N	B	100-200	W
13:55	DOWO	1	foraging on hydro poles	A	100-200	S
13:58	"	1	calling	A	200-300	S

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

AMTU + NOLF calling in marsh
TUVU nearby

Migration Monitoring

PROJECT SITE: GESNER, p. 2

Date: 05/13 Station Number M2 Time 14:00

Observers SKM Any Weather Changes? —

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
14:08	AMER	1	flying SE, calling at RTHA	B	100-500	SW
	RTHA	1	soaring gradually W over woodlot	A→B→C	200 500	S
14:12	TUVU	1	1 soaring over woodlot, then NE, then back S	A→B→C	200-500	N
14:21	TUVU	1	soaring W, then joined others over woodlot	B→C	0-50	ON
14:23	TUVU	1	soaring SW	A→B	300-1000	WNW
14:26	SSHA	1	Soaring E	A	50-100	S
14:29	TUVU	3	soaring over woodlot	A→B	500-1000	W
14:31	TUVU	1	Soaring over woodlot, then flew NW	A	200-500	S
"	RBTH	1	Flying SSE	A	0-50	ON
14:35	KILL	1	Flying rj alarm calling	A	100-200	E
14:37	TUVU	1	soaring SW over woodlot	A	200 500	S
1439	EUST	1	Flying WNW	A	0-50	SW
14:50	TUVU	3	soaring	A→B	500-1000	S

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GESNER

Date: 05/13

UTM:

Wind Direction SSW

Station Number M3

Air Temp. ~18

Wind Speed 2

Time 15:05

Precipitation —

Barometric Pressure

Observers SKW

Cloud Cover (%) 0

Elevation

Visibility clear

• getting quieter as day wears on

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
15:09	TUVU	1	soaring	C	500-1000	SSE
15:11	"	1	soaring over woodlot; then overhead (W)	B	>1000	S
"	NOCA	1	singing	A	100-200	S
15:16	HOLA	2	in field; agg. interaction	A	50-100	NNE
15:14	TUVU	1	soaring over woodlot	A→B	500-1000	E
15:23	HOLA	2	calling in field	A	0-50	E W
"	TUVU	1	soaring W	C	200-500	N
15:25	TUVU	4	kettling	B→C	500-1000	WNW
15:27	BASW	1	flying W	A	50-100	N
"	"	1	"	"	"	S
"	COGR	1	flying E	B	200-500	SE
15:28	AMRO	1	singing	A	200-500	W
15:33	TUVU	1	soaring	B	>1000	NNW
"	PUMA(?)	3	flying	A	200-500	NNW
15:40	CHSP	1	singing	A	200-500	W
15:40	[illegible]	1	alarm call	A	100-200	W
15:42	SOSP	1	singing	A	200-500	WNW
15:45	HOLA	1	aerial flight display, rising up	A→C	0-50	W
15:45	BKSW	1	~~soaring~~ flying through site	B	0-50	@ it
15:50	TUVU	3	soaring W over woodlot	B→C	>1000	SSE
15:57	TUVU	1	same as last			
15:59	"	1	soaring over woodlot	B	>1000	SSW
16:04	BHCO	1	flying WSW	A	200-500	N
16:06	TUVU	1	soaring	B	>1000	SE
"	BASW	1	flying SW	A	0-50	OH

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring **PROJECT SITE:** GESNER , p. 2

Date: 05/13 Station Number M3 Time 16:11

Observers SKM Any Weather Changes? — wind W 5E

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
16:14	TUVU	2	soaring SW	B→C	>1000	SE
16:17	TRES	1	flying over field	A	200-500	E
16:20	TUVU	1	soaring W	B→C	500-1000	NNW
16:22	BKSW	1	flying over field; calling	A→B	0-50	out
16:26	AMRO	1	on road	A	200-500	N
16:27	TUVU	1	soaring SW	B→C	>1000	SE
16:30	"	1	soaring E	A→B	200-500	N
16:33	COGR	1	flying S	A	200-500	W
16:38	AMER	1	flying NW; mobbed by COGR + BASW	A	200-500	SSW
"	BASW	4	flying over field	A	50-100	SE
"	COGR	3	flying along tree line, then along pole line	A	0-50	out
16:45	HOLA	1	aerial flight display, then down into field to SW	A→B→C	0-50	out
16:51	AMGO	1	calling	A	100-200	SW
16:56	TUVU	6	flying SW along woodlot	B→C	>1000	SE

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GESNER

Date: June 11/2008

Station Number M201

Time 13:03

Observers JLM

Elevation —

UTM: _____

Air Temp. 26

Precipitation —

Cloud Cover (%) 30

Visibility clear

Wind Direction SSE

Wind Speed B3

Barometric Pressure _____

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
13:03	MEMA	2	in field, + flight display, 1 each side of road	A	50 - 100	N
	AMRO	2	flying W	A	0-50	N
13:06	EUST	2	flying E	A	0-50	S
	AMER	3	calling	A	200-500	SE
13:09	EUST	2	perching on wire	A	100-200	W
	MOBO	2	flying N	A→B	200-500	NW
13:10	TRUM	1	soaring	A	500-1000	S
13:12	COGR	1	carrying food to nest regular stops every 1-2 min.	A	0-50	W
13:15	KILL	1		A	0-50	S
	KILA	2	V 2-3 min. F.D.	B	0-50	1-N, 1-S
13:18	MOBO	1	perched on wire	A	50-100	W
	AMRO	1	Carrying food, stops every 1-2 min. from var. perch	A	0-50	W
13:20	TRUM	1	soaring	A→C	500-1000	S
13:28	TRUM	2	soaring N	B→C	500-1000	NW
13:33	BOBO	1	flying	A	200-500	SE
13:37	TRUM	2	1 taking off + flying N to meet 2nd	B	500-1000	W
13:41	HOLA	1	flight display	A→B	0-50	N
13:46	~~HOLA~~			B	50 & 100	N
13:48	HOLA	1	flight display	B	0-50	N
13:49	HOLA	1	" "	B→C	50-100	NE
13:50	TRUM	1	soaring E	C	100-200	N
13:51	"	1	soaring W, then lost, then heard W	B	1000	SE
13:55	RWBL	1	calling in field	A	0-50	SW
13:59	HOLA	2	F.D.	B→C	0-50	S

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GLS. , p. 1

Date: June 11/08

Station Number MOA

Time 14:02

Observers SK

Any Weather Changes? — Wind 83.4 @ 14:30

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
14:02	NOHA	1	F.D.	C	50-100	N
14:08	"	1	"	B	100-200	NE
14:10	"	"	" N 2 min.	B-C	0-50	S
14:11	BHCO	4	perched on wire	A	50-100	E
14:28	VESP	1	singing	B	0-50	E
14:30	TRUH	2	soaring NW		500-1000	S
14:41	RTHA	1	soaring W	C	0-50	N
14:42	NOHA	1	F.D.	A-C	50-100	NE
"	"	1	"	B	0-50	E
14:47	TRUH	4	soaring SW over woodlot	B-C	>1000	SW
14:49	NOHA	1	F.D.	B	50-100	N
14:53	TRUH	1	soaring NNW	B	500-1000	NW
14:54	COHA	1	calling from woodlot	A	100-200	S
14:57	NOHA	1	F.D. N 2 min.	C	0-50	NW
15:00	NOHA	1	F.D.	B-C	100-200	N

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: Cosner

Date: June 11 '04

UTM:

Wind Direction NNW

Station Number NJ03

Air Temp. 26

Wind Speed B 1-2

Time 10:55

Precipitation ~

Barometric Pressure

Observers Skn

Cloud Cover (%) 0

Elevation —

Visibility clear

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
10:55	RWBL	1	singing, probably ~10 in field to S	A	50-100	W
	COGR	1	singing	A	50-100	W
	house	1	singing	A	100-200	NE
	DICK	1				NW
	SOSP	1	singing	A	100-200	ENE
	RWBL	1	alarm calling			S
11:02	~~BRACR~~	2	flying N	A	100-200	E
	RWBL	4	mobbing AMCR	"	"	"
11:21	MARO	1	flying N into woodlot	A	50-100	E
11:23	WIFL	1	singing	"	"	N
11:23	GRCA	1	calling	"	"	N
11:24	COGR	1	circling	A→B	0-50	N
11:26	PRUA	1	singing in shrubs	A	50-100	N
11:31	HOWA	2	moving about field	A	"	N
11:44	RTHA	2	soaring in circles, gradually moving ENE	A→B→C	500-1000	S
11:50	TUVU	1	soaring	C	500-1000	SE
12:00	BAEA	1	flying near pole line	A	0-50	E
12:11	BNOS	2	perched on wire	A	0-50	E
12:12	BOBO	1	circled N over field, then returned to tree	A	0-50	E
12:15	TUVU	4	soaring W SW	A→C	50-100	NW
11	NOHA	1	soaring ESE	C	50-100	W
"	TUVU	2		A→B	200-500	NW

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring **PROJECT SITE:** GLS , p. 2

Date: June 11/08 Station Number MDOS Time

Observers Sam Any Weather Changes? cloud cover ~40%

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
12:27	RTHA	1	flew to transmission pole, perched, then flew to road	A	50-100	N
12:28	COGR	1	flying S along treeline	A	100-200	SW
12:36	AMKE	1	flying	A B	100-200	S
12:39	HOLA	1	gathering of stones on road	A	50-100	E
12:47	RTHA	1	soaring W/SW, streaking over roadlet	B→C	0-50	W W
12:48	TUVU	1	soaring, rising gradually in kettle	B→C	400-500	W
		+2	lower over roadlet gaining altitude	A→B	50 "	"
		+2	perched in roadlet, then started soaring	"	"	"

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: Gesner

Date: June 12

UTM: _____

Wind Direction SE

Station Number VD01

Air Temp. 21

Wind Speed B F

Time 11:03

Precipitation —

Barometric Pressure _____

Observers 5km

Cloud Cover (%) 50

Elevation —

Visibility clear

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
11:03	NOCA	2	singing in field	A	0-50	NE
	COGR	2	"	A	11	"
11:08	TRUM	1	soaring N	A	200-500	ENE
11:19	TRUM	4	soaring over valley	A→C	500-1000	NE
11:20	TRUM	1	soaring over farm buildings	B	500-1000	NW
	RTHA	1	adult calling	A	100-200	NW
11:31	NOCA	1	calling in field	A	0-50	W
11:32	"	1	"	B	100-200	E
11:34	VESP	1	singing	A	0-50	E
11:35	RTHA	1	in background TRUM over valley	A→A	500-1000	N
11:37	COYE	1	singing S	B	0-50	SW
11:37	AMRO	1	flying E over field	A	0-50	S
11:46	TRUM	1	soaring over valley, 2 males w/ blackbirds	B→C	200-500	E
11:46	HOWR	1	F.O. the TRUM W, 1 more S 1 every min.	B	0-50	SW
11:49	CHSP	1	singing	A	0-50	NW
11:51	NOCA	1	F.O.	B	50-100	N
"	"	1	" soaring, then rapid in response	A→B	0-50	W
11:51	AMRO	1	" - 1 male	B	0-50	SW
11:58	RTHA	1	flying over field	A	0-50	N
12:00	AMRO	1	F.O.	A→B	0-50	SW
12:10	TRUM	1	soaring over valley	B	500-1000	S
12:18	HOWR	1	F.O.	B	0-36	SW

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring **PROJECT SITE:** GCS , p. 2

Date: June 12/08 Station Number V101 Time 12:31

Observers SKM Any Weather Changes? ~

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
12:31	RTHA (1 adult, 1 juv)	2	soaring, near w cattle	A-B	200-500	E
12:33	HOLA	1	F.D.	B	0-50	OH
12:37	TUVU	1	soaring over w cattle	B	200-500	W
12:39	"	1	soaring over cattle, many [illegible]	A	500-1000	N
12:42	HOLA	1	F.D.	B	0-50	OH
12:47	TUVU AMKE	2 1	foraging S soaring W	A-B C	200-500 500-1000	E N
12:54	HOLA	1	F.D.	A	0-50	W
14:59	HOLA	1	F.D.	B	0-50	OH

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Point Count Data Form

Observer: Steve	Site: CGS	Date: June 11
Station ID: PP2	Visit #: Summer 1	Start Time (HH:MM): 06:10
Beaufort Wind Scale: B2	Cloud Cover (%): 0	Temperature (°C): 16
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← → RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

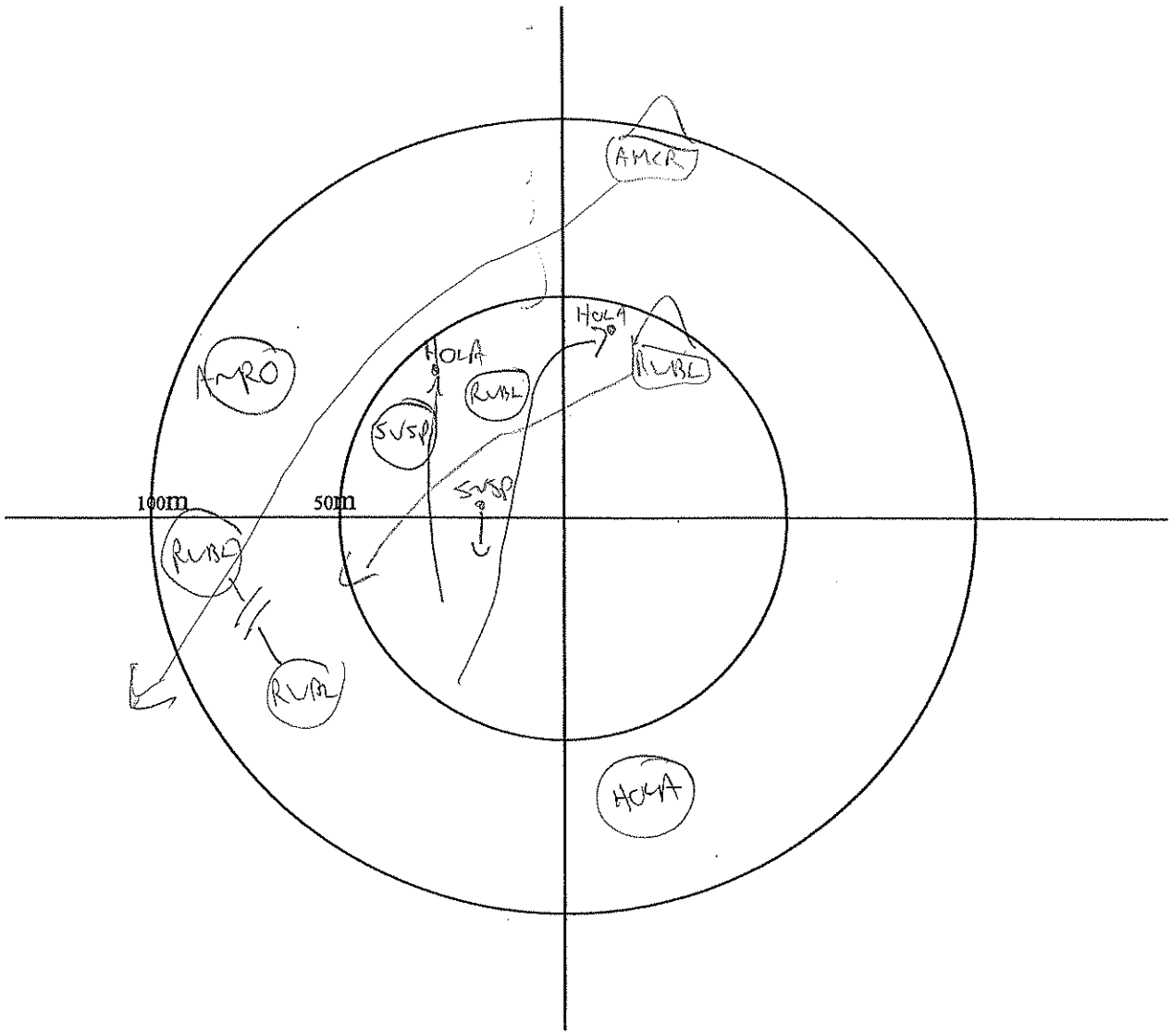
1 - BTH

2 - close to TH

3 - UBS

4 - WABS

Outside/Flythru
COGR - 3 + 7 + 5 + 5
AMCR - 3
RECR
MODO
RWBL - 10
AMRO - 2



Point Count Data Form

Observer:	Site:	Date:
Station ID: FRY	Visit #:	Start Time (HH:MM): 06:28
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

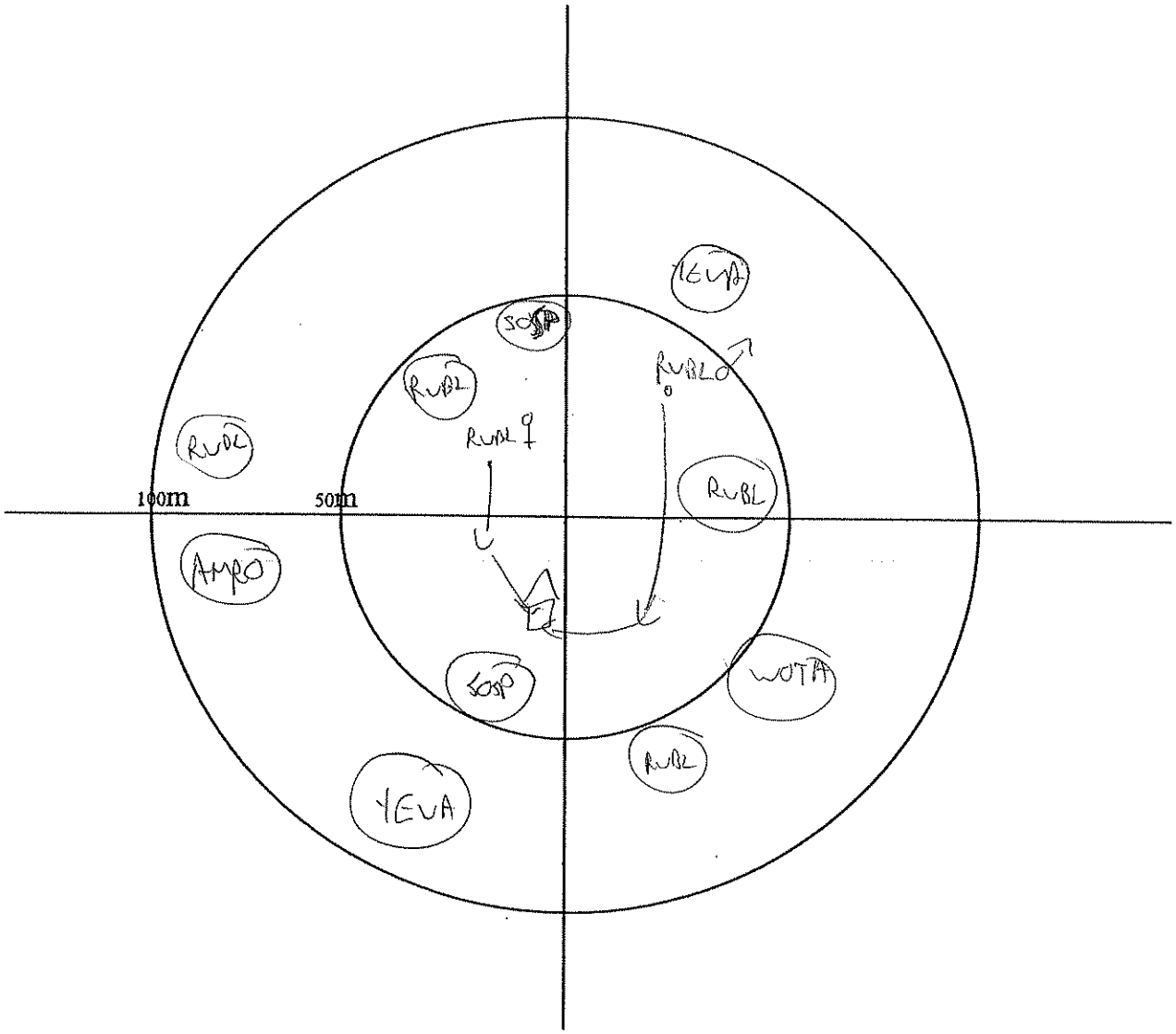
1 - BTH

2 - close to TH

3 - W BS

4 - WABS

Outside/Flythru



Point Count Data Form

Observer:	Site:	Date:
Station ID: PT 1	Visit #:	Start Time (HH:MM): 0515
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally
TRGS	1

Symbols

RWBL — Single bird, singing/calling

RUBL RUBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

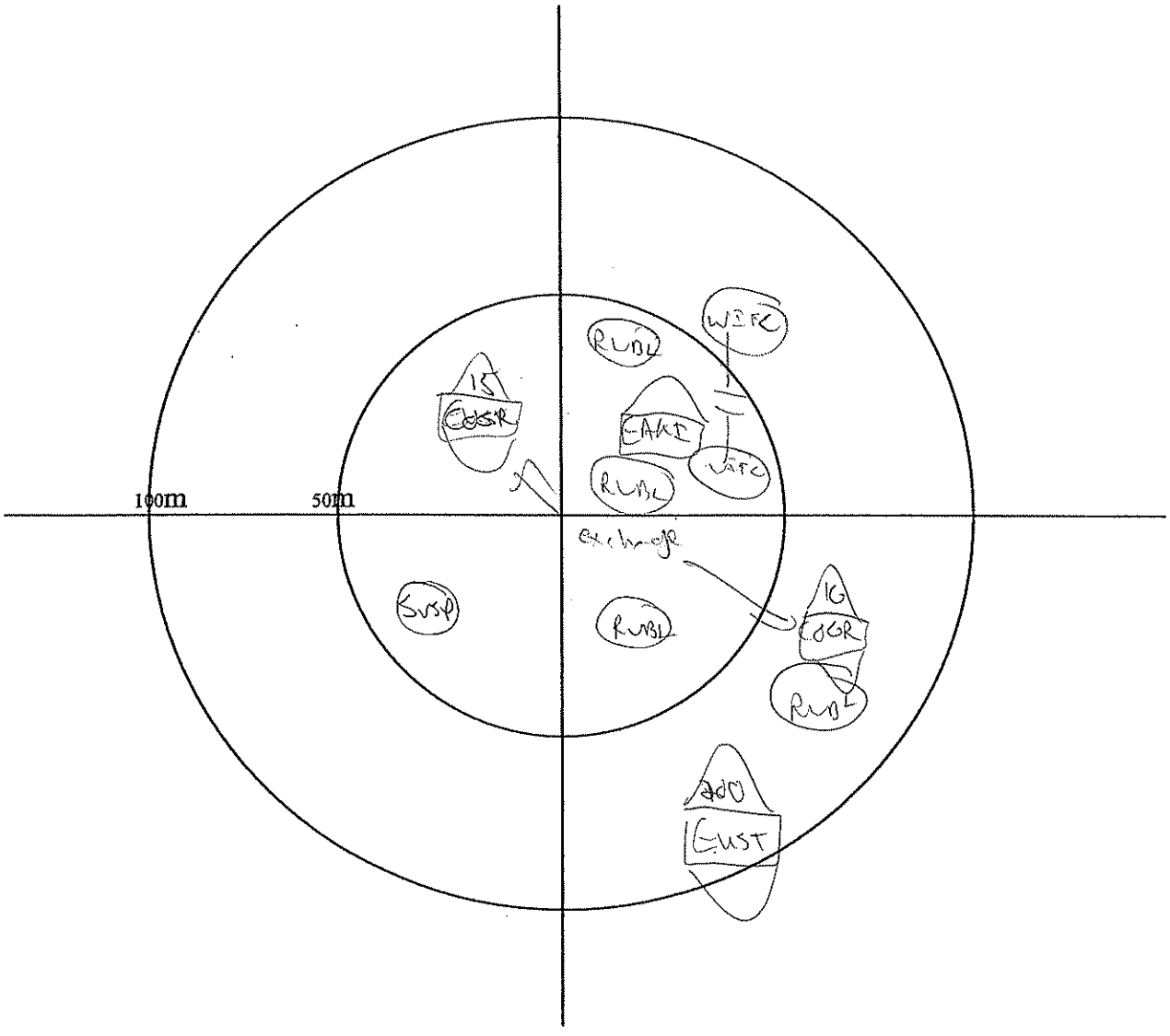
1 - BTH

2 - close to TH

3 - UBS

4 - WABS

Outside/Flythru
CUST-IG
AMCR
AMBI



Point Count Data Form

Observer: SKM	Site: CES	Date: June 11
Station ID: FRY	Visit #: SUM ## 1	Start Time (HH:MM): 05:44
Beaufort Wind Scale: B 2 V	Cloud Cover (%): 0	Temperature (°C): 16
Precipitation: ~	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally
BRNS	III

Symbols

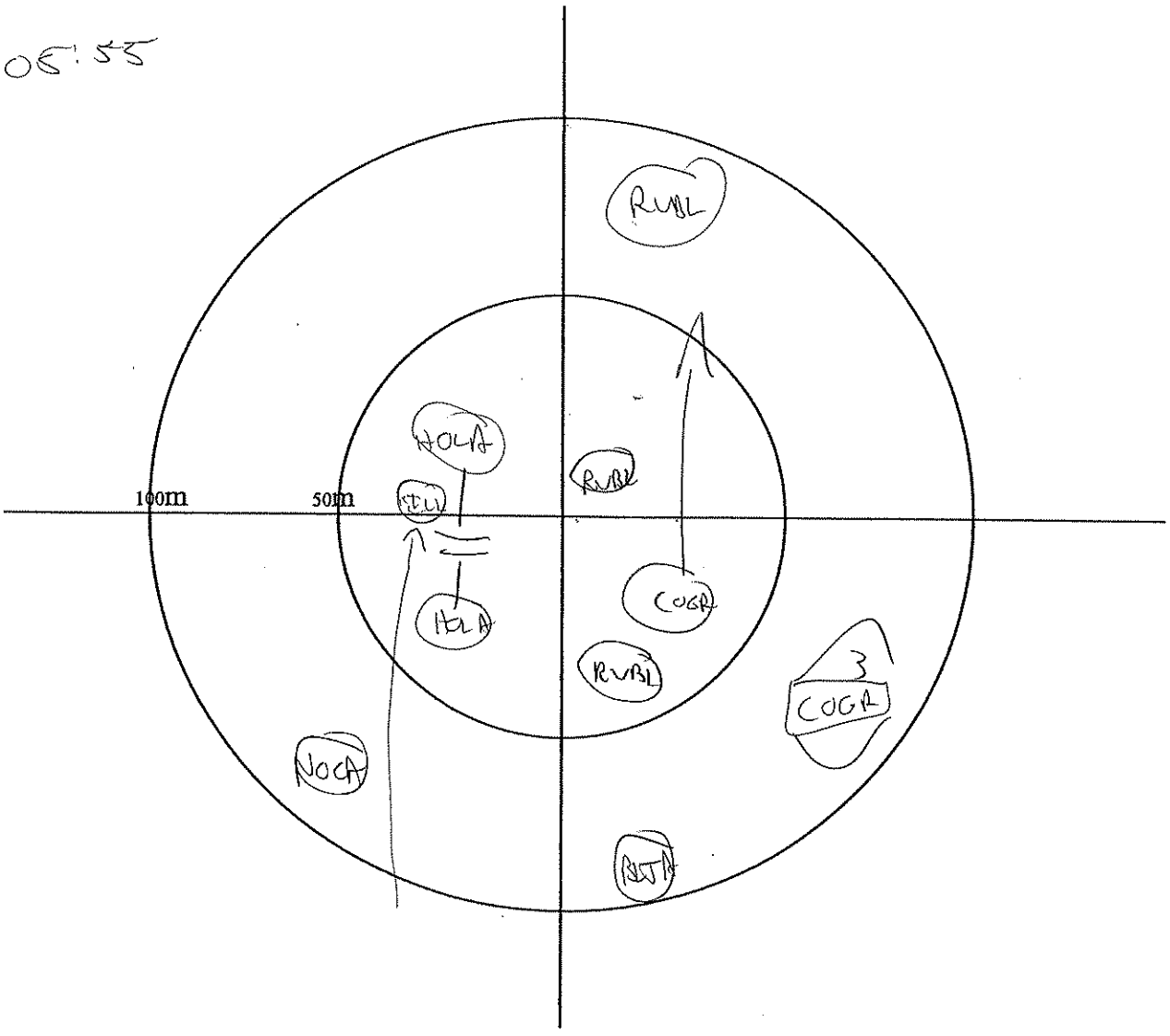
- RWBL — Single bird, singing/calling
- RWBL — RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WABS

Outside/Flythru
Cust
AmCR - 2
COGR
RWBL - 2
NOCA
KILL

Sunrise @ 05:55



Point Count Data Form

Observer:	Site:	Date:
Station ID: PFS	Visit #:	Start Time (HH:MM): 06:54
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C): 17
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

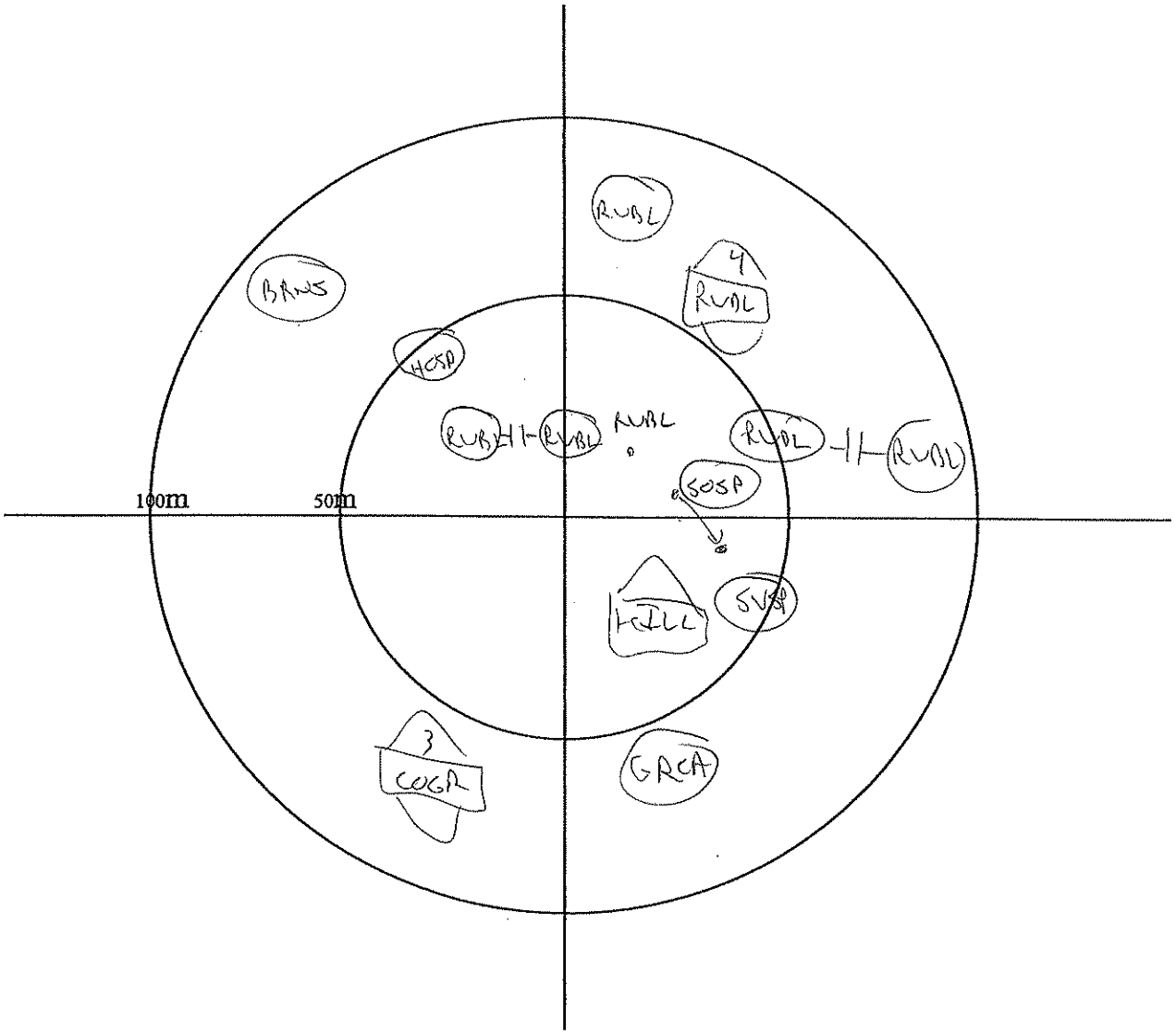
1 - BTH

2 - close to TH

3 - U BS

4 - WABS

Outside/Flythru
AMRO - 2
AMCR - 2
GWST - 3



Point Count Data Form

Observer: SKM	Site: GES	Date: June 11
Station ID: FF6	Visit #: SKM1	Start Time (HH:MM): 06:42
Beaufort Wind Scale: B2 ✓	Cloud Cover (%): 0	Temperature (°C): 16
Precipitation: —	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

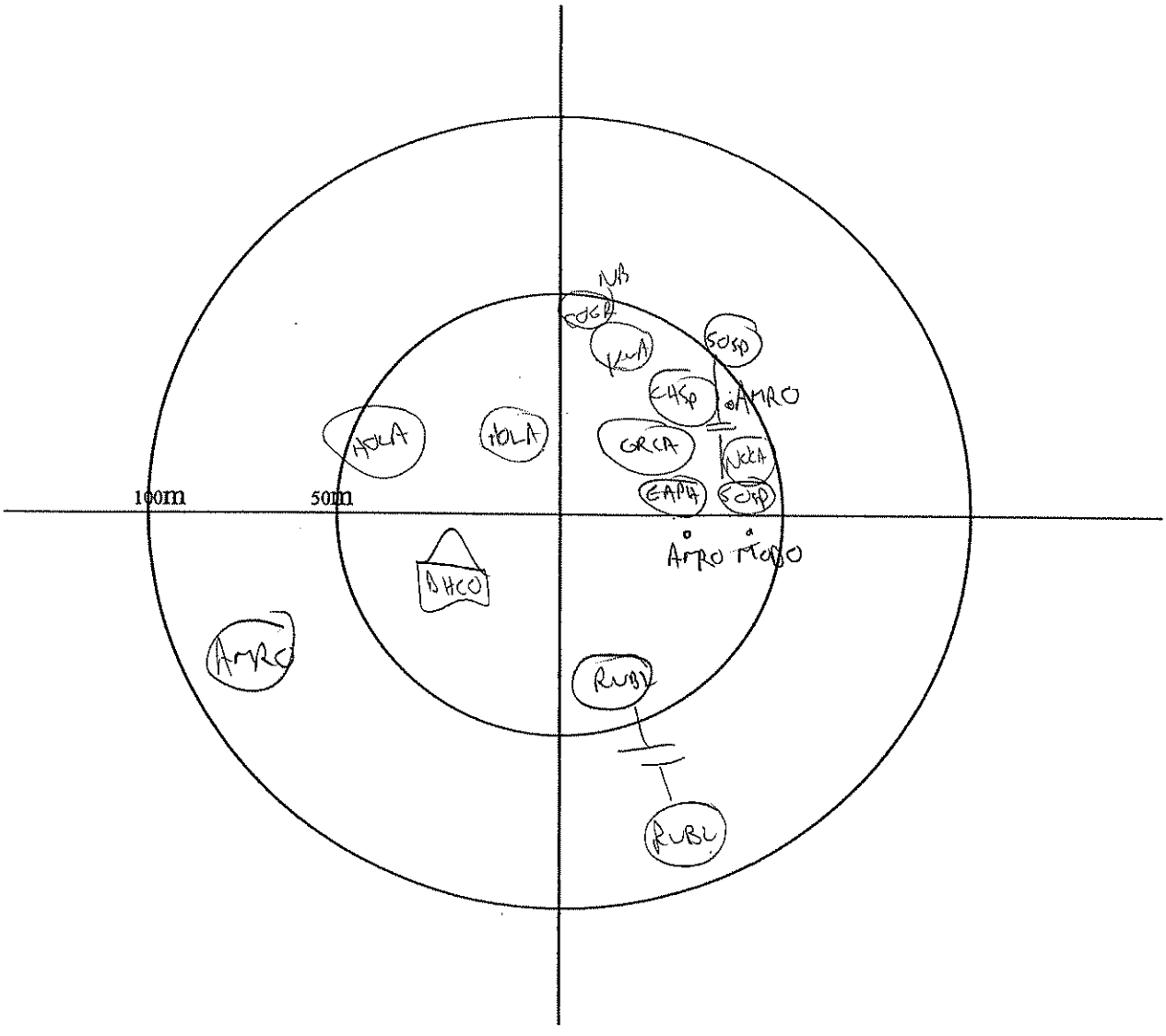
Symbols

- RWBL — Single bird, singing/calling
- RUBL RUBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - W BS
4 - WA BS

Outside/Flythru
BAOR



Point Count Data Form

Observer: SKM	Site: GES	Date: June 11
Station ID: PP 8	Visit #: Sum 1	Start Time (HH:MM): 08:13
Beaufort Wind Scale: BIL	Cloud Cover (%): 0	Temperature (°C): 17
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

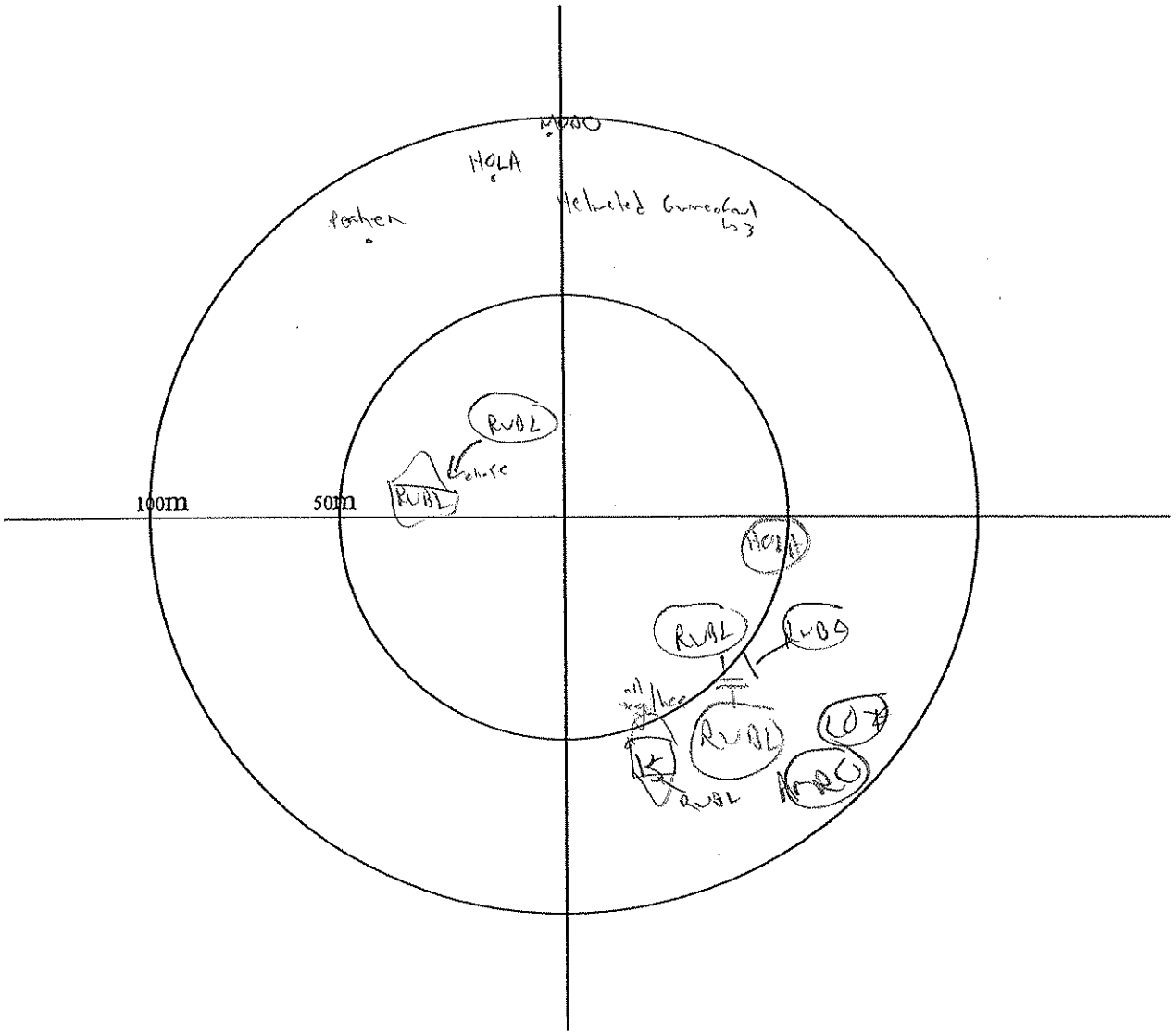
1 - BTH

2 - close to TH

3 - U BS

4 - WABS

Outside/Flythru
RTLH



Point Count Data Form

Observer: SKM	Site: CES	Date: June 11
Station ID: PP9	Visit #: SUM 1	Start Time (HH:MM): 07:35
Beaufort Wind Scale: B1	Cloud Cover (%): 0	Temperature (°C): 17
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RUBL — RUBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

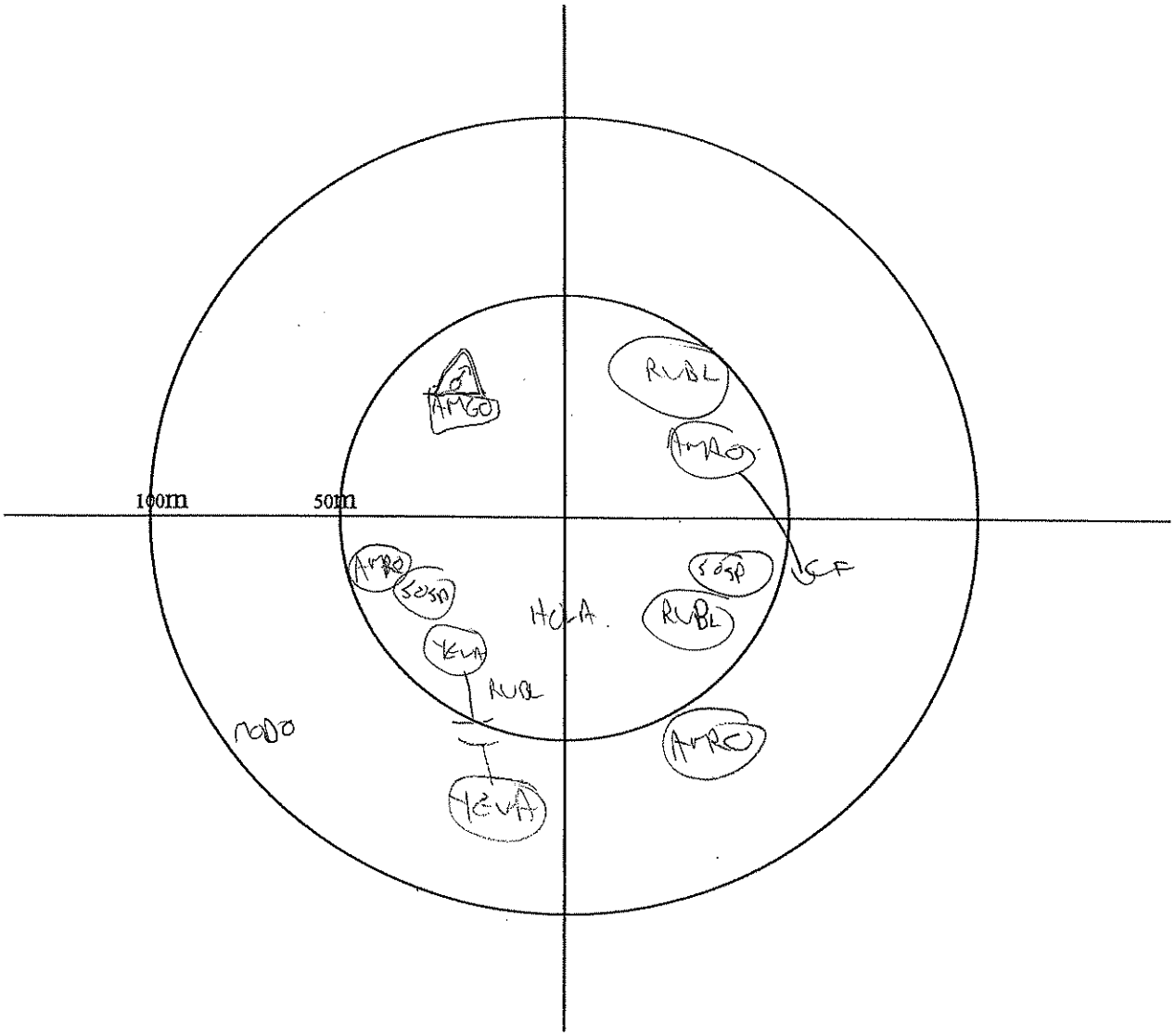
1 - BTH

2 - close to TH

3 - U BS

4 - WA BS

Outside/Flythru
EUST-2
RWMT



Point Count Data Form

Observer:	Site:	Date:
Station ID: FF10	Visit #:	Start Time (HH:MM): 07:59
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs, but not calling/singing

Known change in position

Height

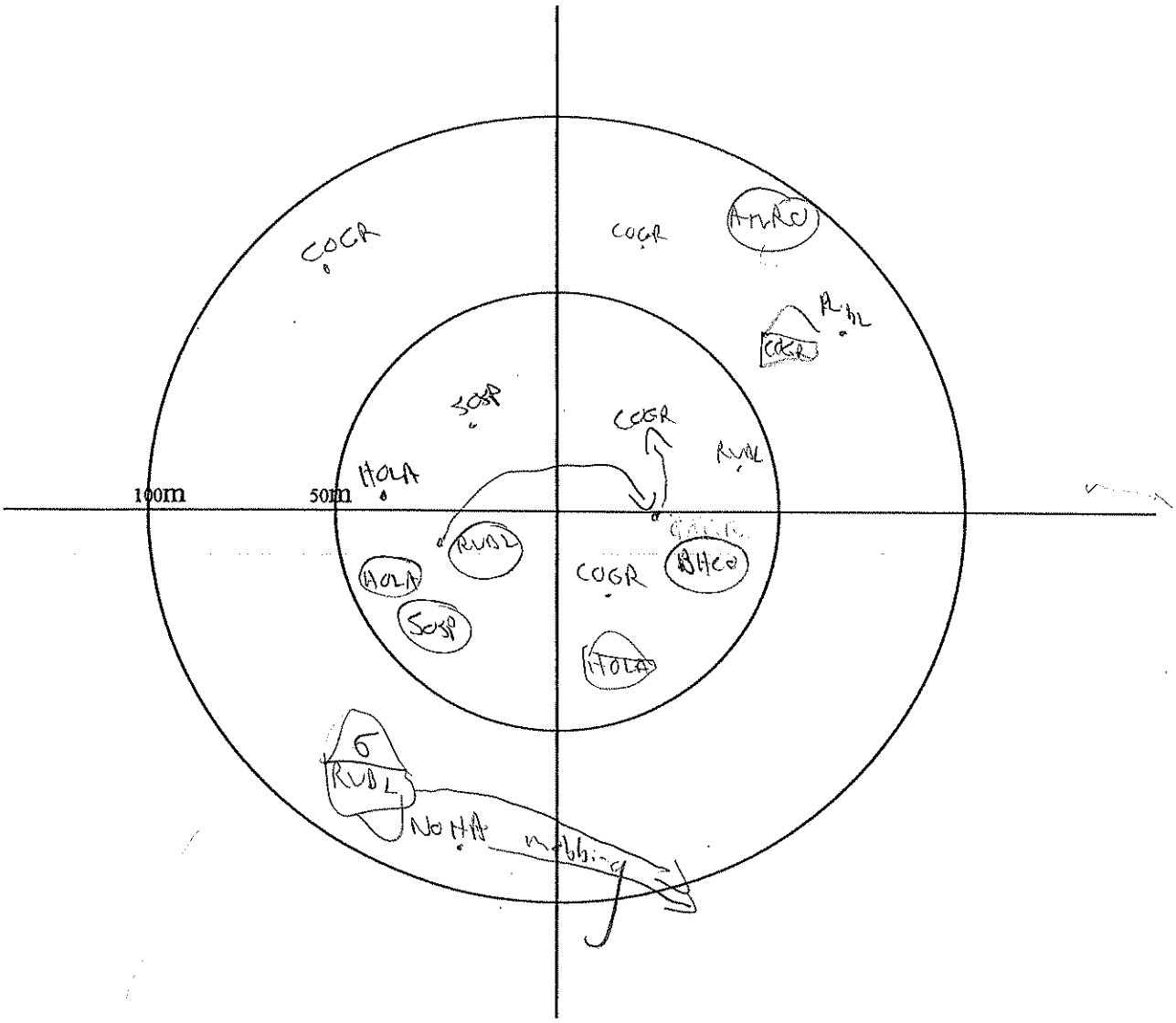
1 - BTH

2 - close to TH

3 - UBS

4 - WABS

Outside/Flythru



Point Count Data Form

Observer:	Site:	Date:
Station ID: FF11	Visit #:	Start Time (HH:MM): 06:31
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally
BANS	1

Symbols

RWBL — Single bird, singing/calling

RWBL → ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs. but not calling/singing

Known change in position

Height

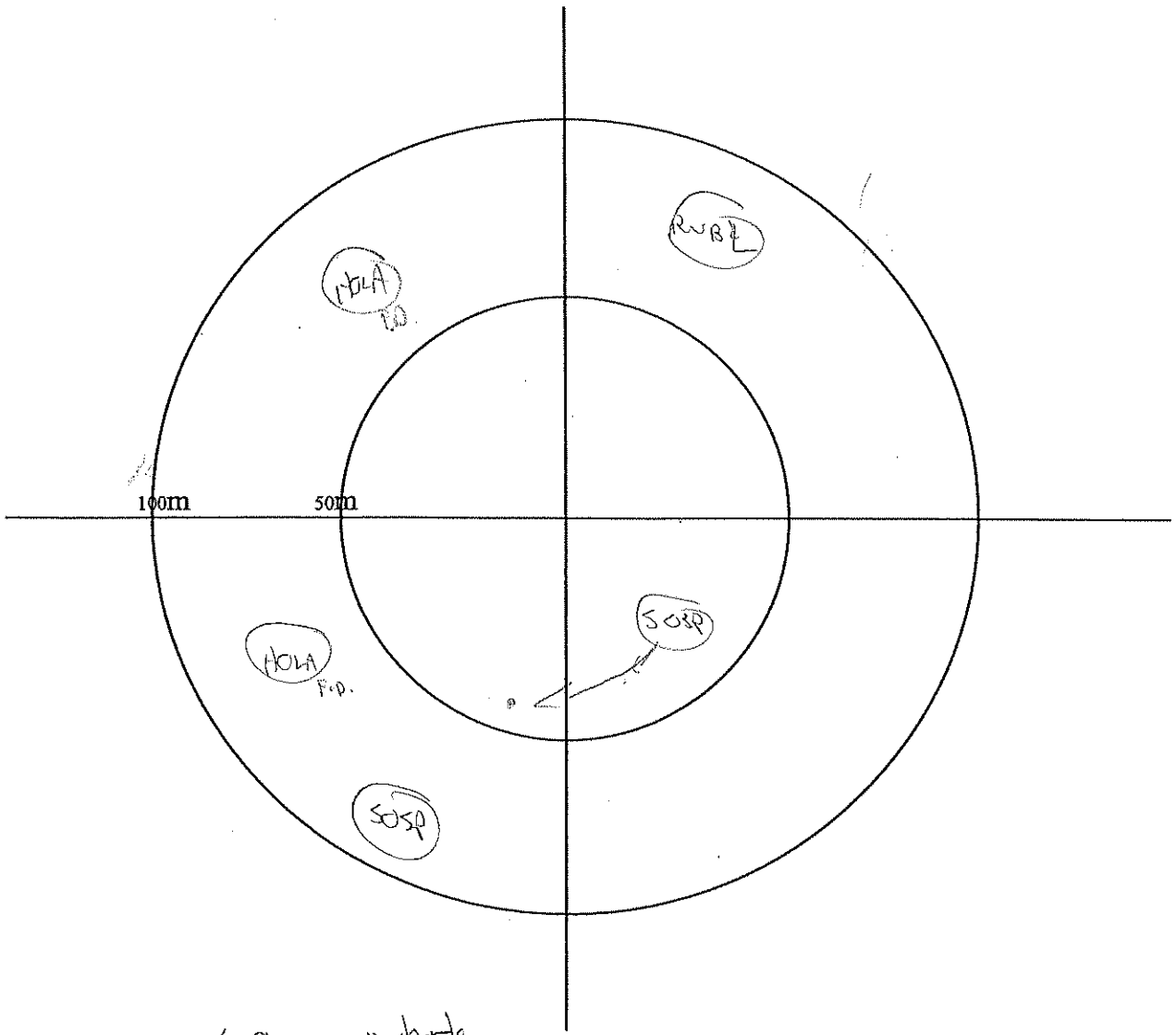
1 - BTH

2 - close to TH

3 - UBS

4 - WABS

Outside/Flythru
AMCR
CAGO - 26 Flyover
TUVU



*Note: chimney Swift in flyover

Point Count Data Form

Observer: SKM	Site: GES	Date: June 12
Station ID: FR 12	Visit #: Survey 1	Start Time (HH:MM): 06:19
Beaufort Wind Scale: 3-4-5	Cloud Cover (%): 80	Temperature (°C): 17
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

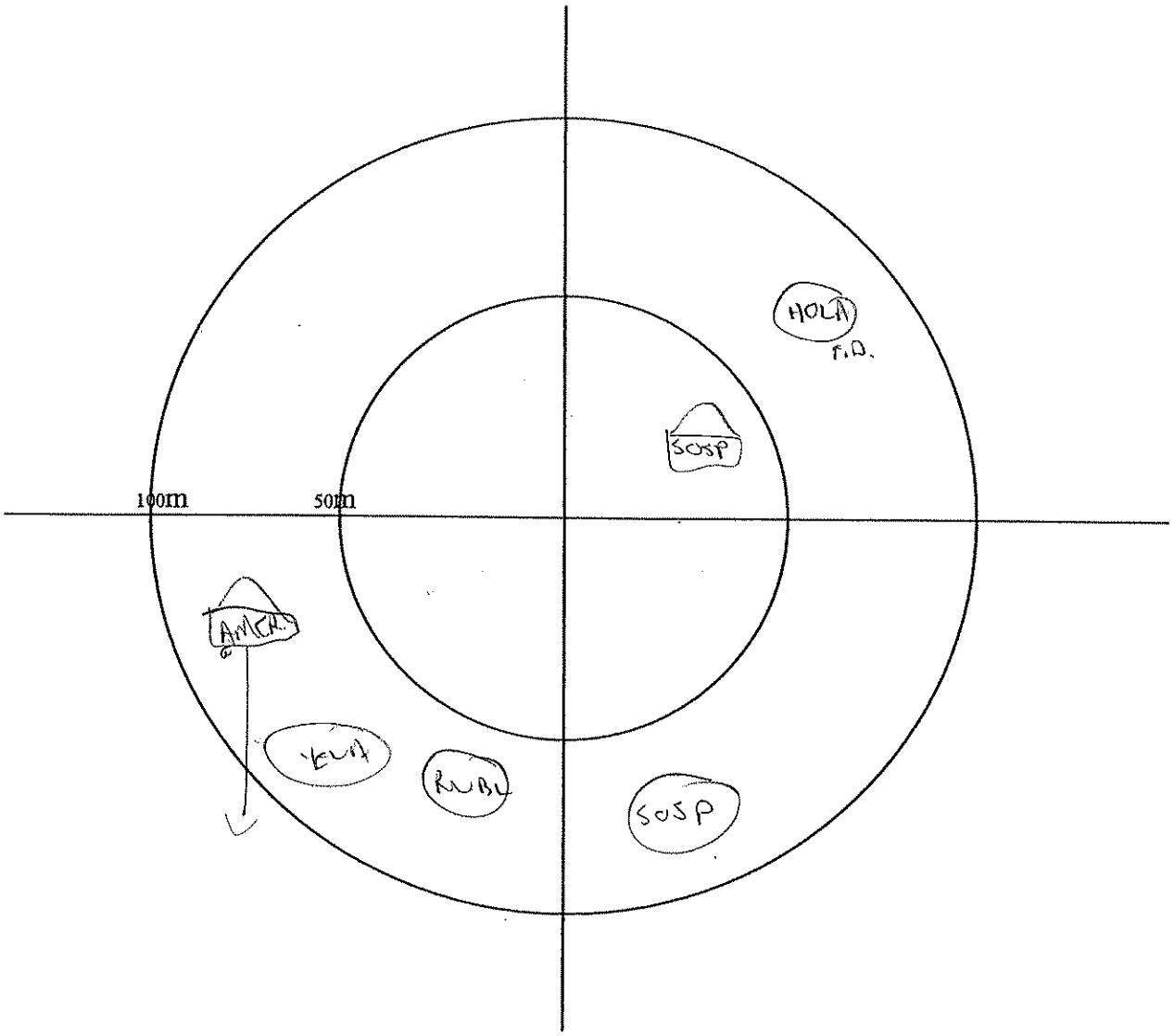
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - WBS
4 - WABS

Outside/Flythru
COGR-7
CAGO - 19 - flying SE
WOTA



Point Count Data Form

Observer:	Site:	Date:
Station ID: FP21	Visit #:	Start Time (HH:MM): 0531
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

- RWBL — Single bird, singing/calling
- RWBL — RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs. but not calling/singing
- Known change in position

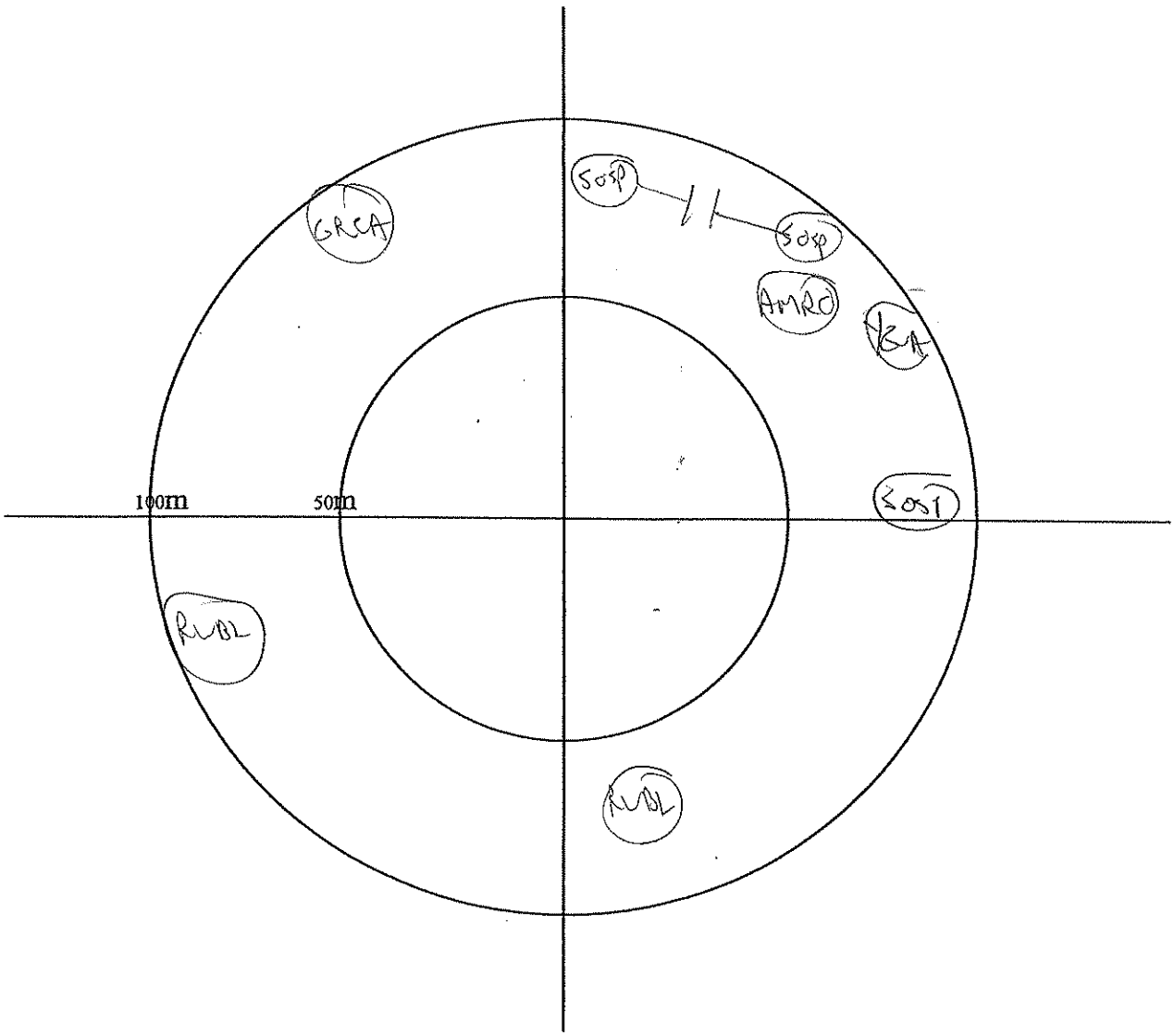
Height

1 - BTH
2 - close to TH
3 - W BS
4 - WABS

Outside/Flythru
COGR - 3+3+2
CATSW
EAST
KILL
MOUO
BORO

AMCR
RWBL

Raccoon



Point Count Data Form

Observer: SKT	Site: GES	Date: June 11
Station ID: FF20	Visit #: Sum 1	Start Time (HH:MM): 05:19
Beaufort Wind Scale: B2 W	Cloud Cover (%): 0	Temperature (°C): 16
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

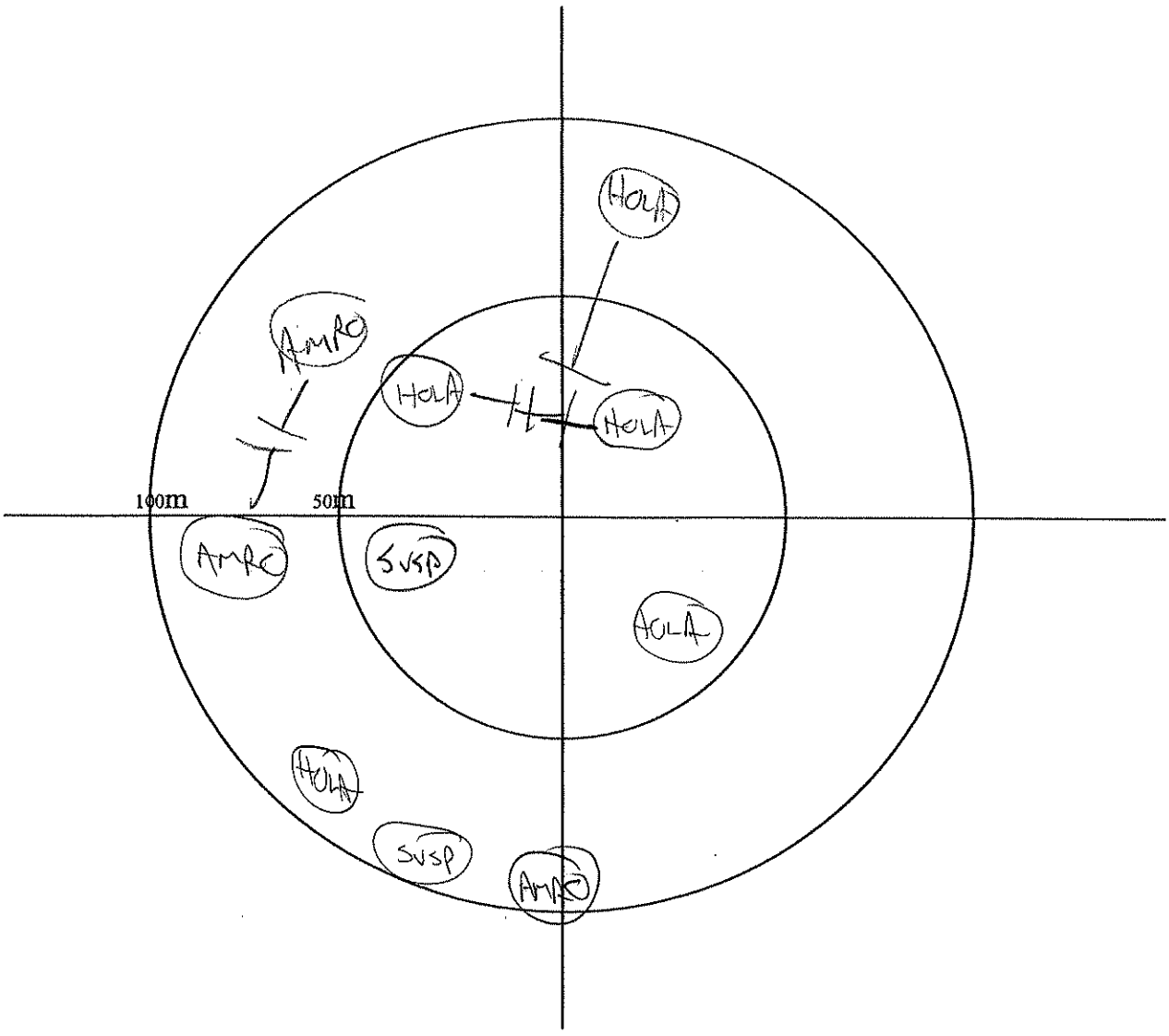
Height

1 - BTH
2 - close to TH
3 - W BS
4 - WA BS

Outside/Flythru
AMCR - 2
NOCA - 2
HOLA
EAST
CHSP
MOUG

COGR

Here



Point Count Data Form

Observer: SKM	Site: GES	Date: June 12
Station ID: FF19	Visit #: SUM 1	Start Time (HH:MM): 0652
Beaufort Wind Scale: B4	Cloud Cover (%): 80	Temperature (°C): 18
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

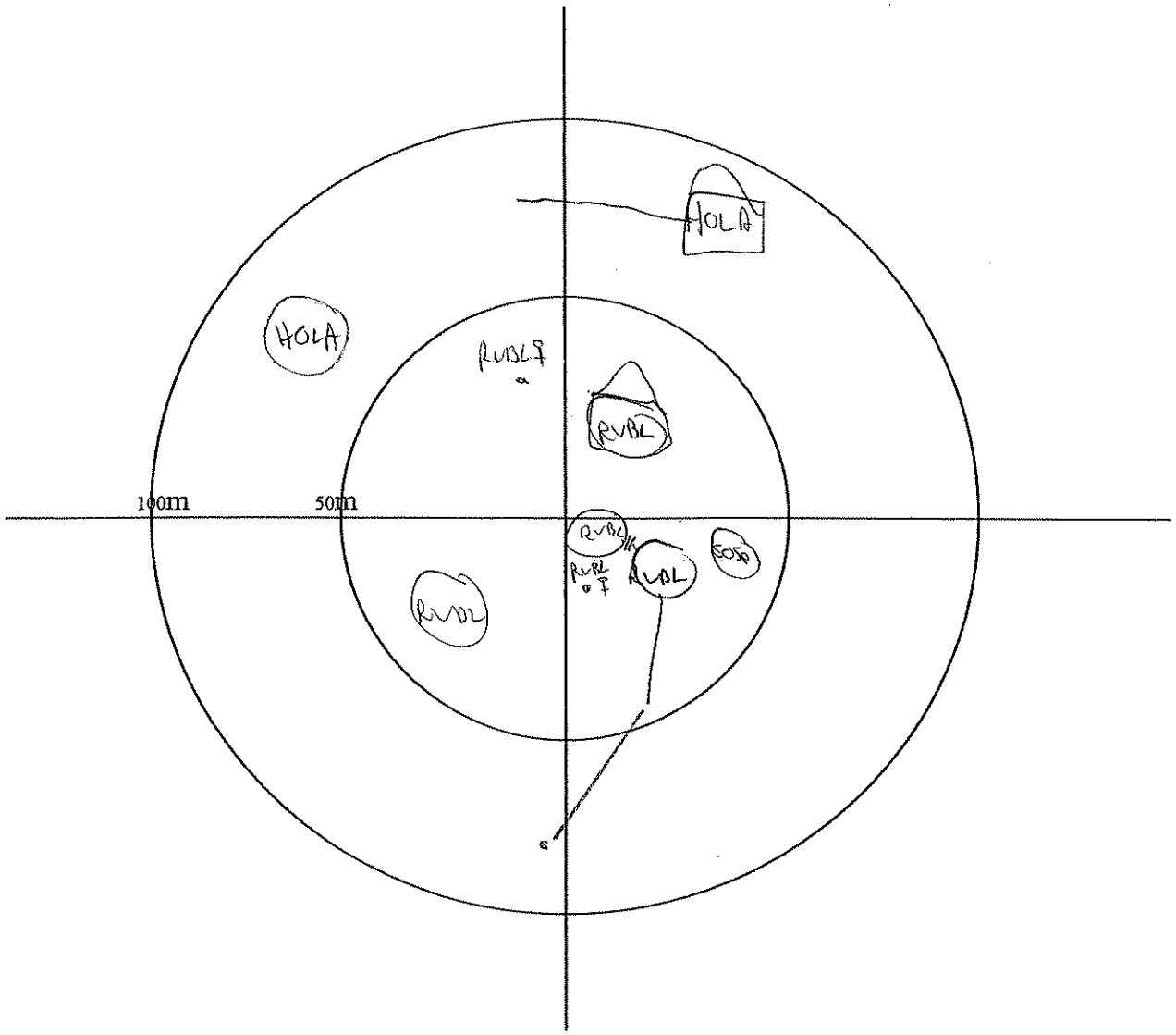
- RWBL — Single bird, singing/calling
- RWBL — RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WABS

Outside/Flythru
AMGO - 2
MODO
AMRO
EUST
AMCR
RWBL - 3

COGR



Point Count Data Form

Observer: SKM	Site: GES	Date: June 11
Station ID: FF 7	Visit #: SUM 1	Start Time (HH:MM): 07:07
Beaufort Wind Scale: B 1 V	Cloud Cover (%): 0	Temperature (°C): 17
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally
CLSW	11

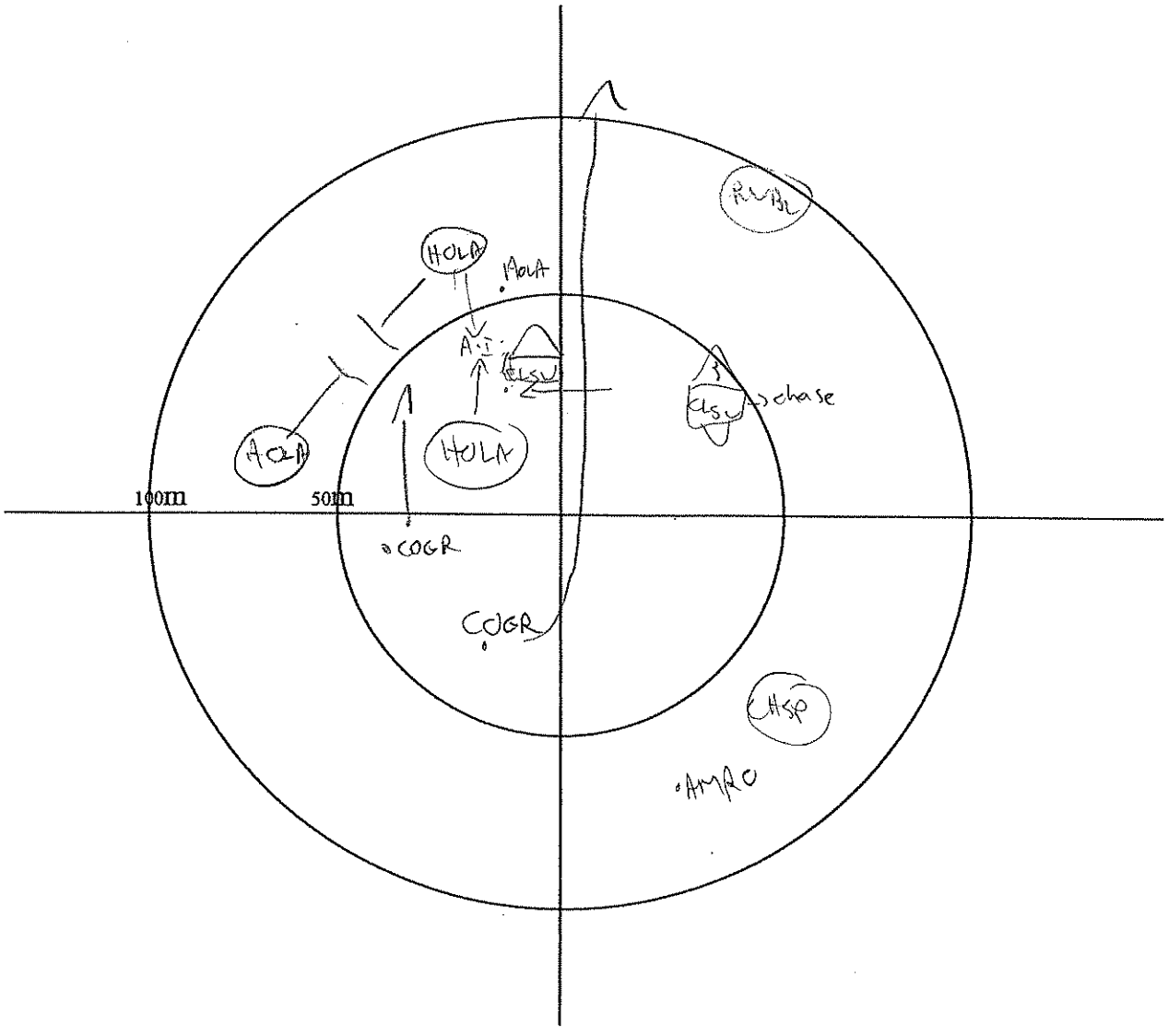
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- O—→O — known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WA BS

Outside/Flythru
AMCR
MDO
RILL



Point Count Data Form

Observer:	Site:	Date:
Station ID: FF17	Visit #:	Start Time (HH:MM): 07:20
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally
BRWS	1

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

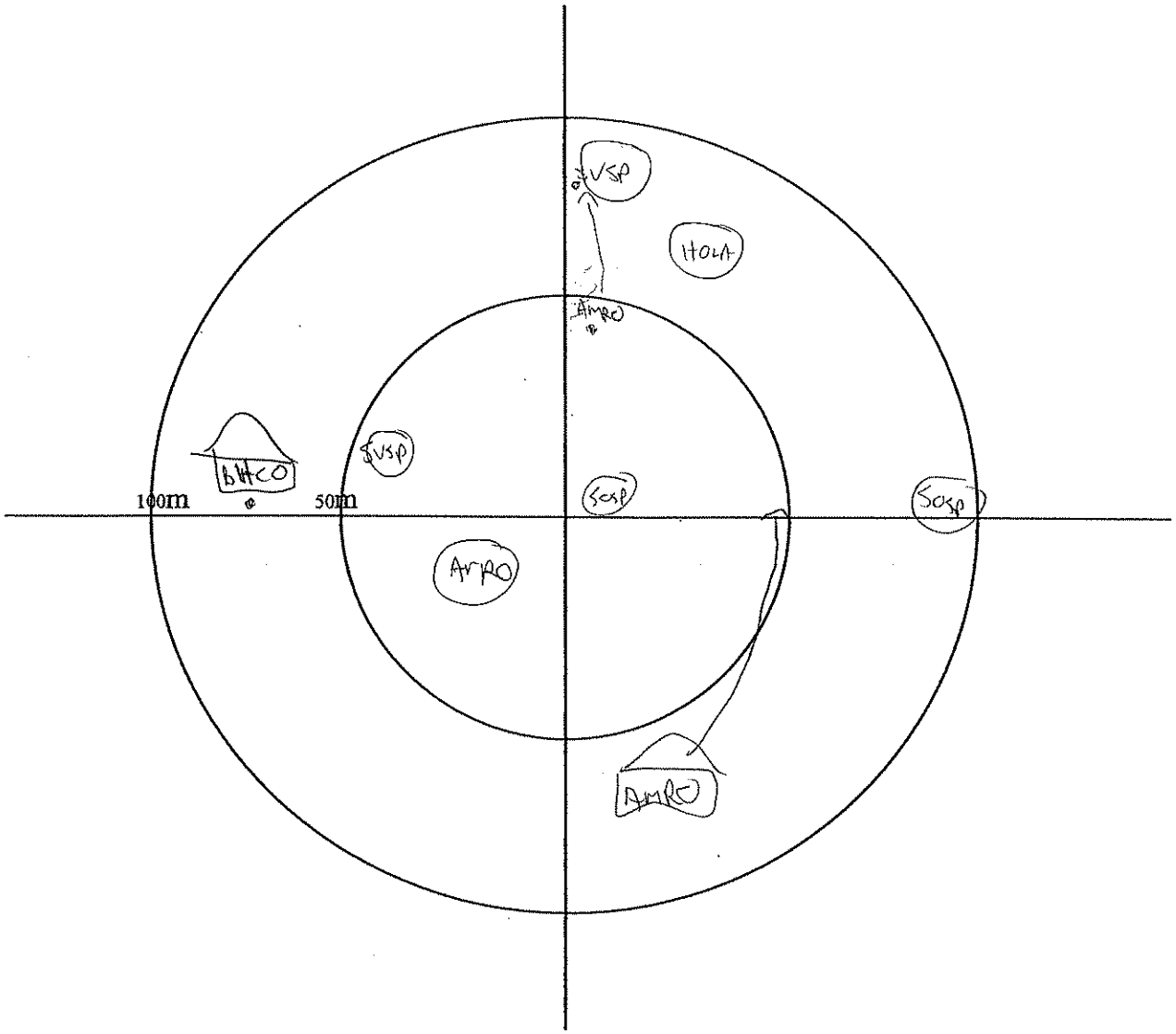
1 - BTH

2 - close to TH

3 - W BS

4 - WABS

Outside/Flythru
AMCR-2
COGR-3
MOHO
RBWO



Point Count Data Form

Observer: SKM	Site: GES	Date: Jun 12/08
Station ID: FR16	Visit #: 5 um 1	Start Time (HH:MM): 05:24
Beaufort Wind Scale: 4, 5, 5	Cloud Cover (%): 90	Temperature (°C): 16
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

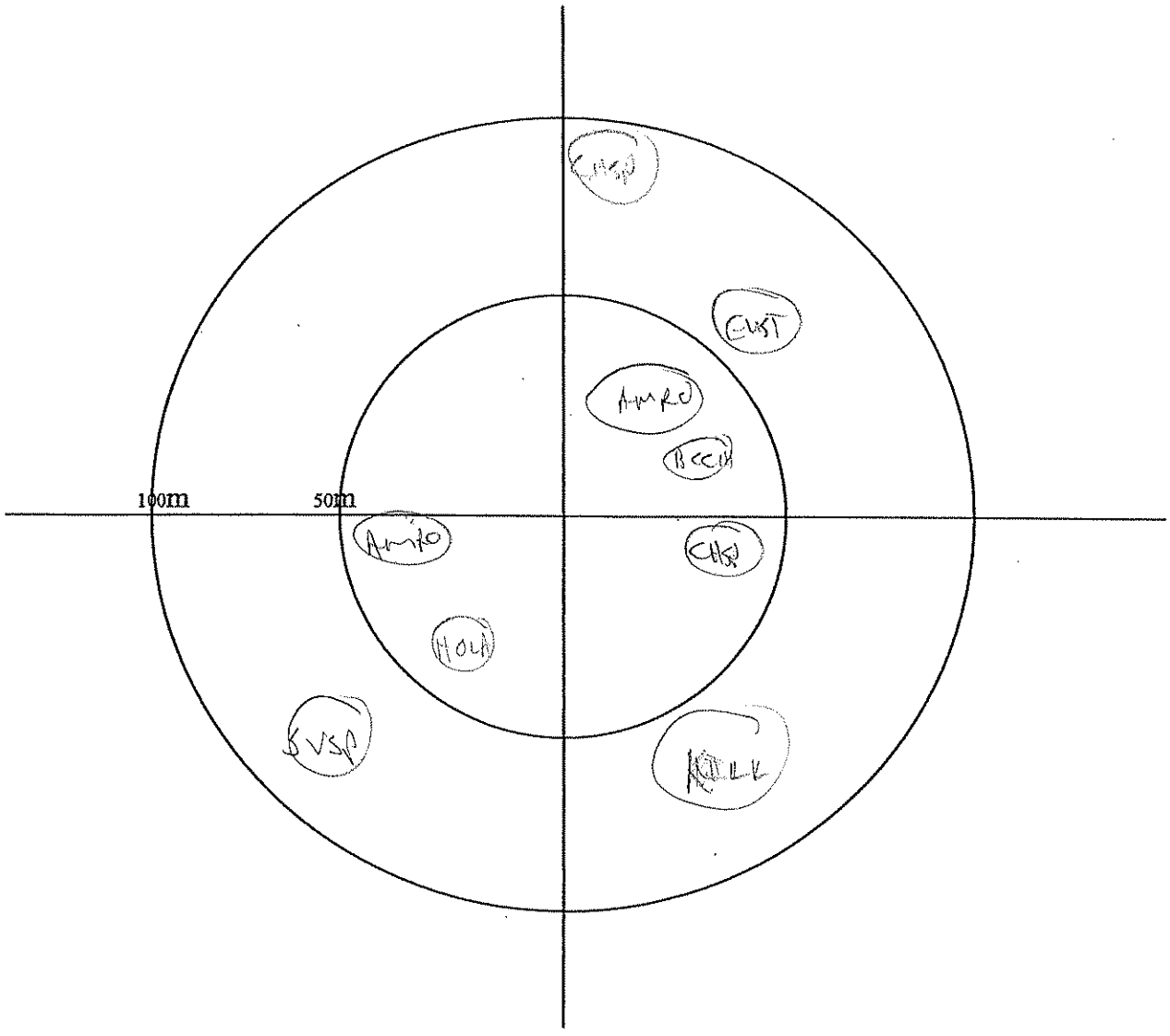
Symbols

- (RWBL) Single bird, singing/calling
- (RWBL) ⟷ (RWBL) Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- O—→O known change in position

Height

1 - BTH
2 - close to TH
3 - ~~WABS~~
4 - WABS

Outside/Flythru
AMCR
WOTH



Point Count Data Form

Observer:	Site:	Date:
Station ID: FF 15	Visit #:	Start Time (HH:MM): 05:35
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C): 17
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

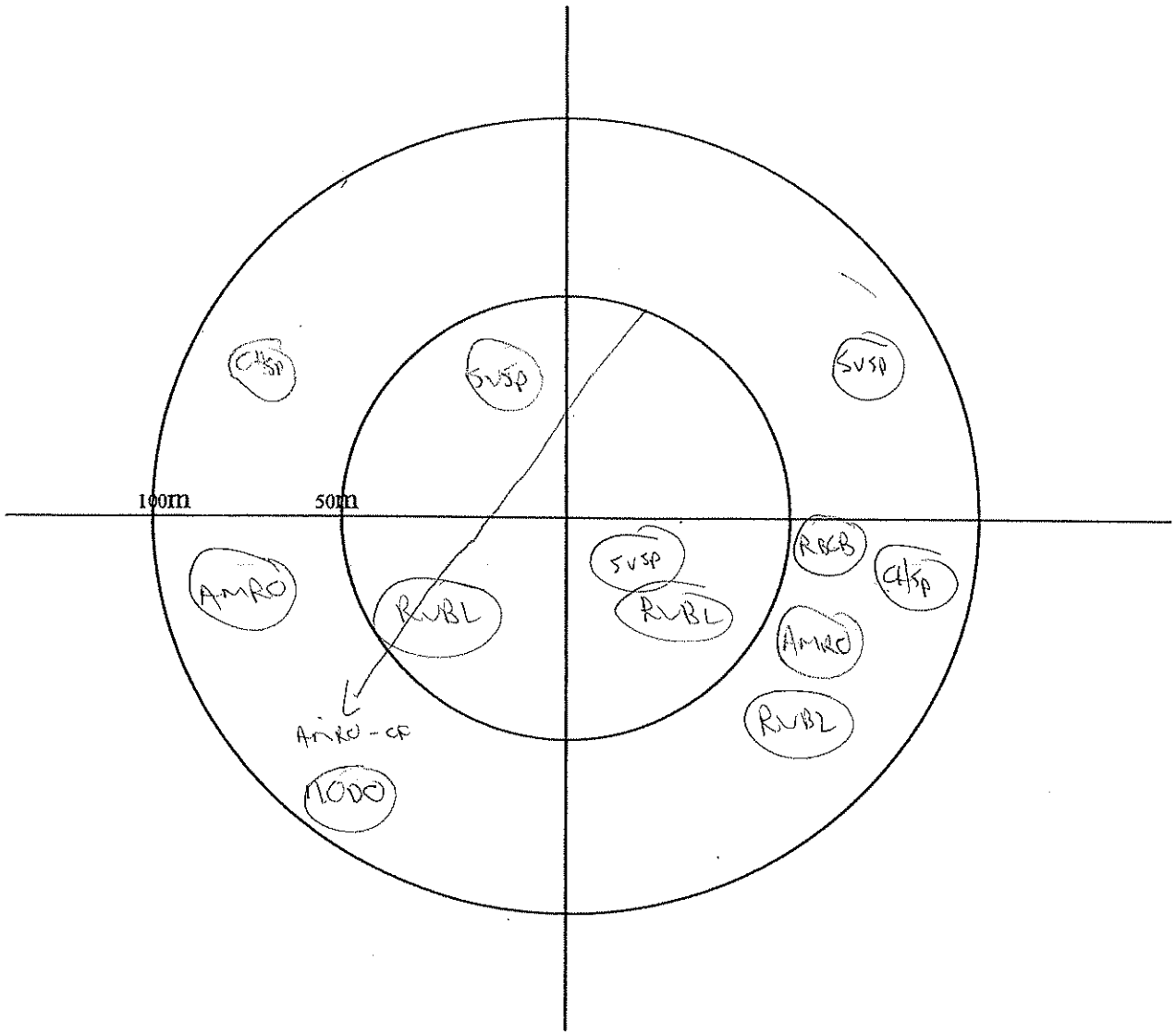
- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - WBS
4 - WABS

Outside/Flythru
AMCR
RWBL-2
NOCA
CHSP
EUST
THVI

MODO



Point Count Data Form

Observer: SKM	Site: GES	Date: June 12 08
Station ID: FF 14	Visit #: SUM 1	Start Time (HH:MM): 05:48
Beaufort Wind Scale: B4	Cloud Cover (%): 90%	Temperature (°C): 17
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

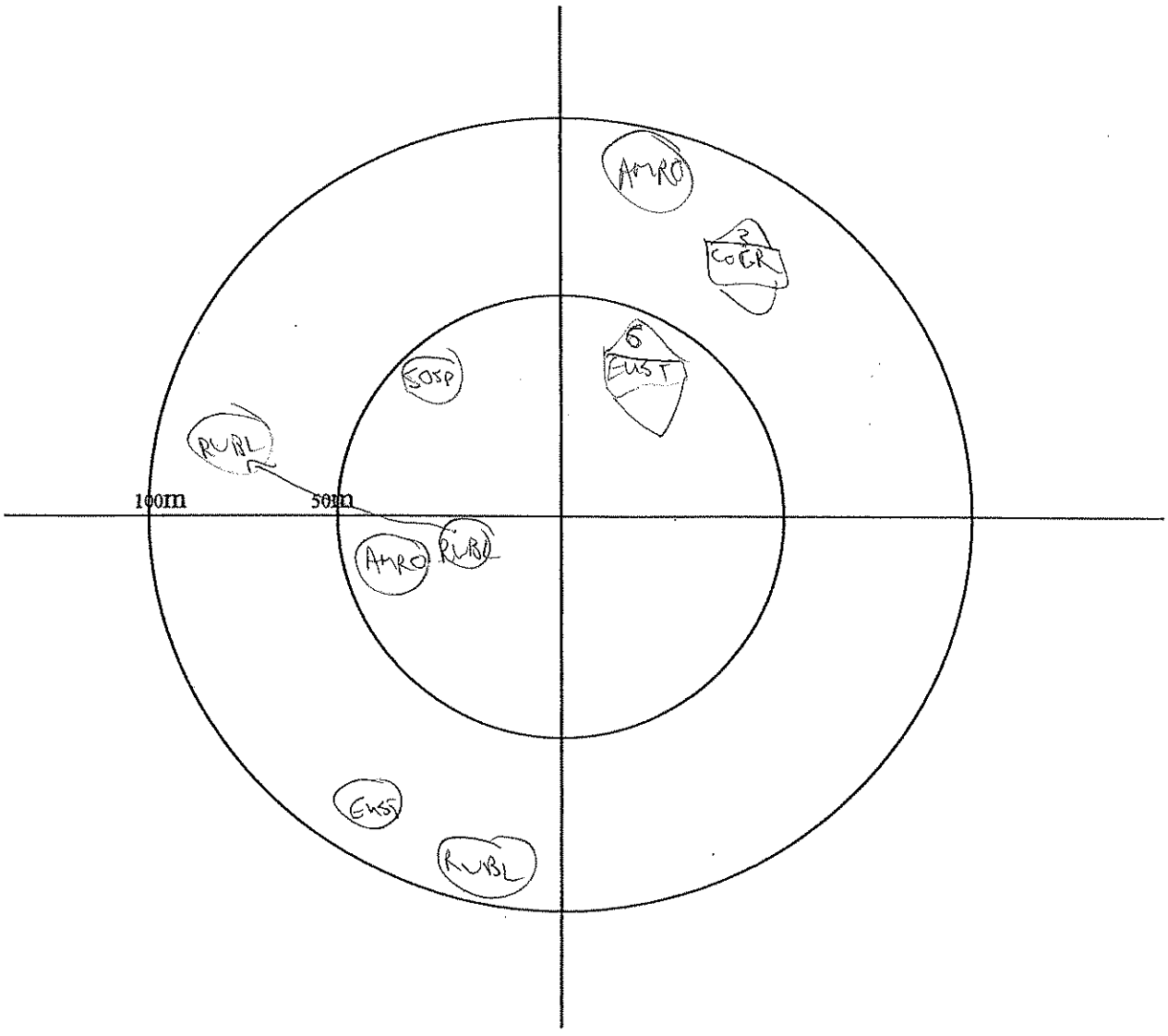
Symbols

- (SWBL) Single bird, singing/calling
- (RWBL) (RWBL) Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - WBS
4 - WABS

Outside/Flythru
COGR-2
AMRO-2
EUST-7+15



Point Count Data Form

Observer:	Site:	Date:
Station ID: FF 13	Visit #:	Start Time (HH:MM): 0600
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ↔ RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

1 - BTH

2 - close to TH

3 - U BS

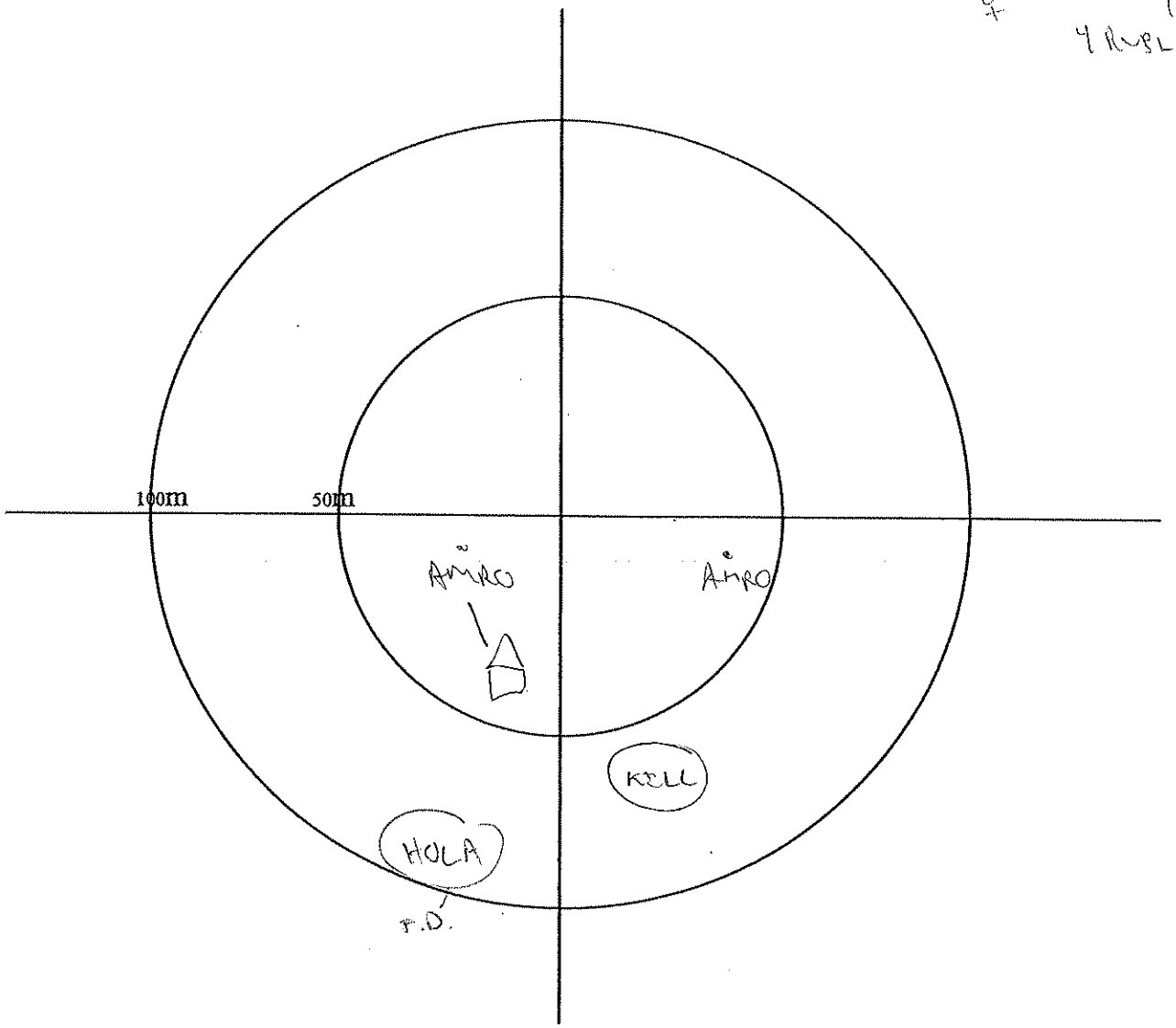
4 - WABS

Outside/Flythru
TUVU - 2
COGR - 2
AMCR
AMRO - 2
HOSA
KELL

AMCO - 1

RWBL

NOHA ♀ → [illegible] by 1 RWBL



Point Count Data Form

Observer: Shan	Site: C.E.S	Date: June 11
Station ID: W3 A001	Visit #: Svr 1	Start Time (HH:MM): 08:58
Beaufort Wind Scale: B 0	Cloud Cover (%): 0	Temperature (°C): 21
Precipitation: ✓	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← RWBL — Diff. birds of same sp.

Pair together

Family group

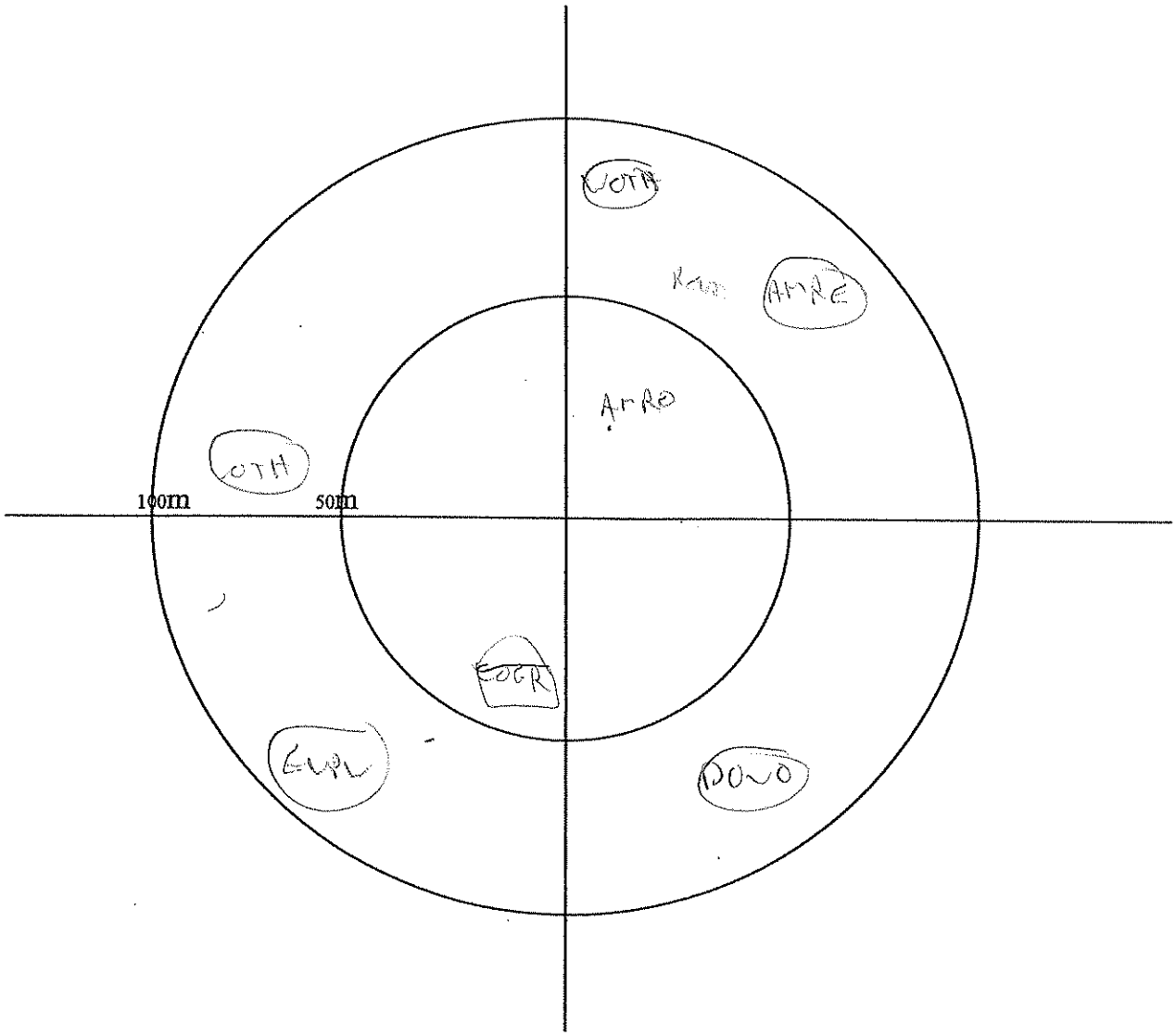
Obs. but not calling/singing

Known change in position

Height

1 - BTH
2 - close to TH
3 - W BS
4 - WABS

Outside/Flythru
EVPL
RAVE



Point Count Data Form

Observer:	Site:	Date:
Station ID: VTP02	Visit #:	Start Time (HH:MM): 0943
Beaufort Wind Scale: B1	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

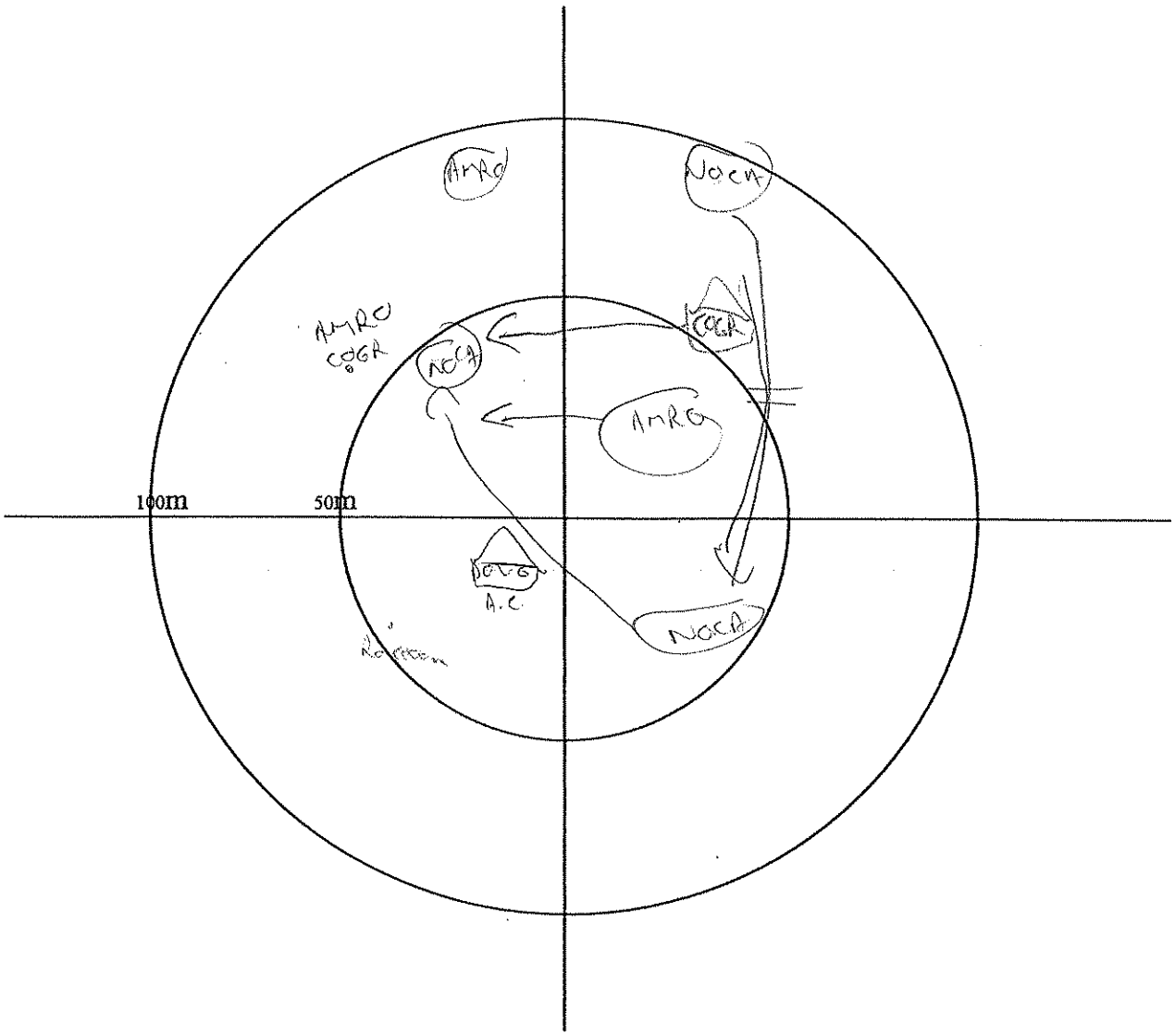
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - V BS
4 - WABS

Outside/Flythru
NOCA



Point Count Data Form

Observer: SKM	Site: LCS	Date: Jun. 12/09
Station ID: WIPPC02	Visit #: Study 1	Start Time (HH:MM): 09:39
Beaufort Wind Scale: B 4	Cloud Cover (%): 0	Temperature (°C): 25
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

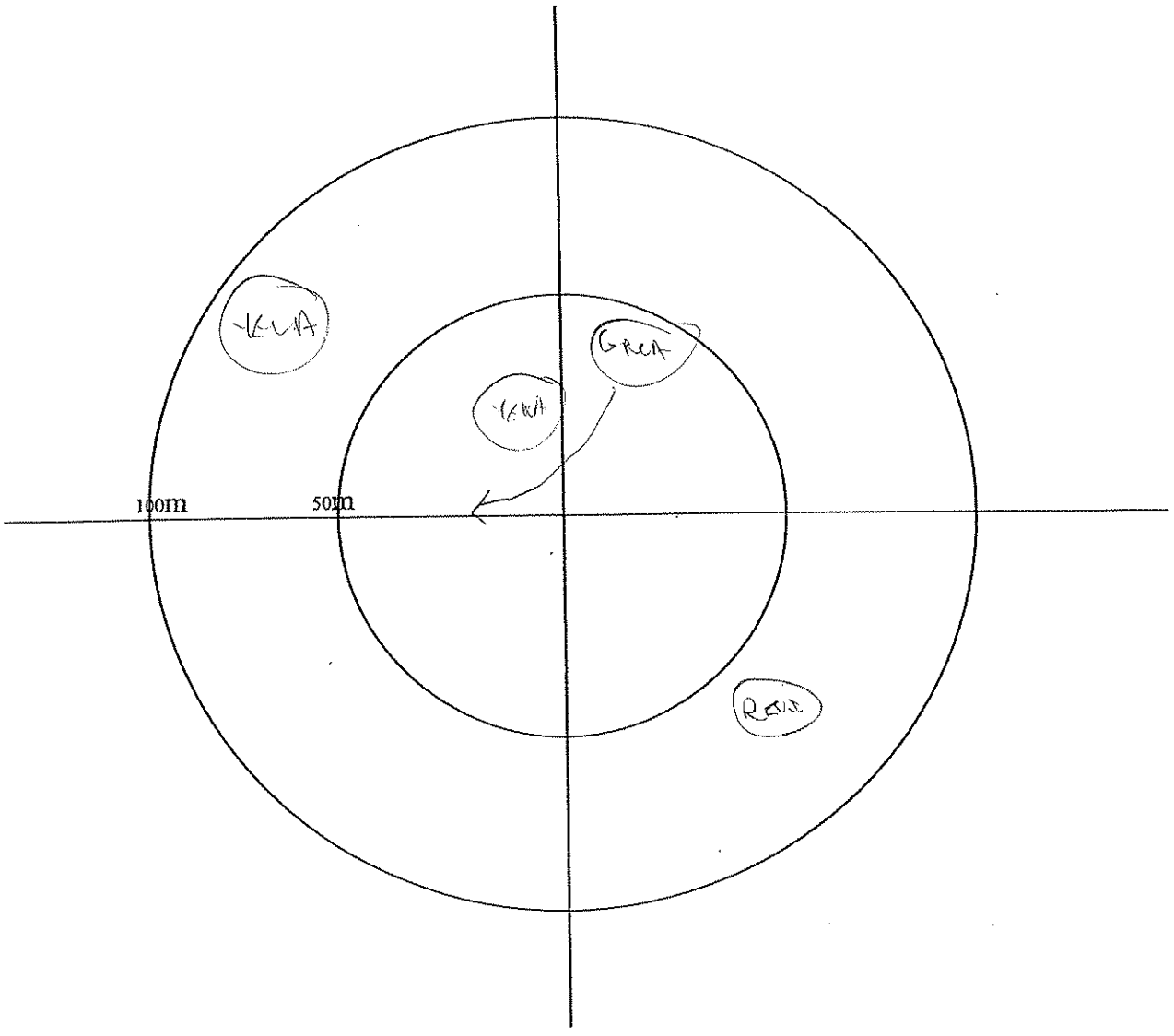
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs, but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WA BS

Outside/Flythru
NOFL
AMCR
RBGR



Point Count Data Form

Observer:	Site:	Date:
Station ID:	Visit #:	Start Time (HH:MM):
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

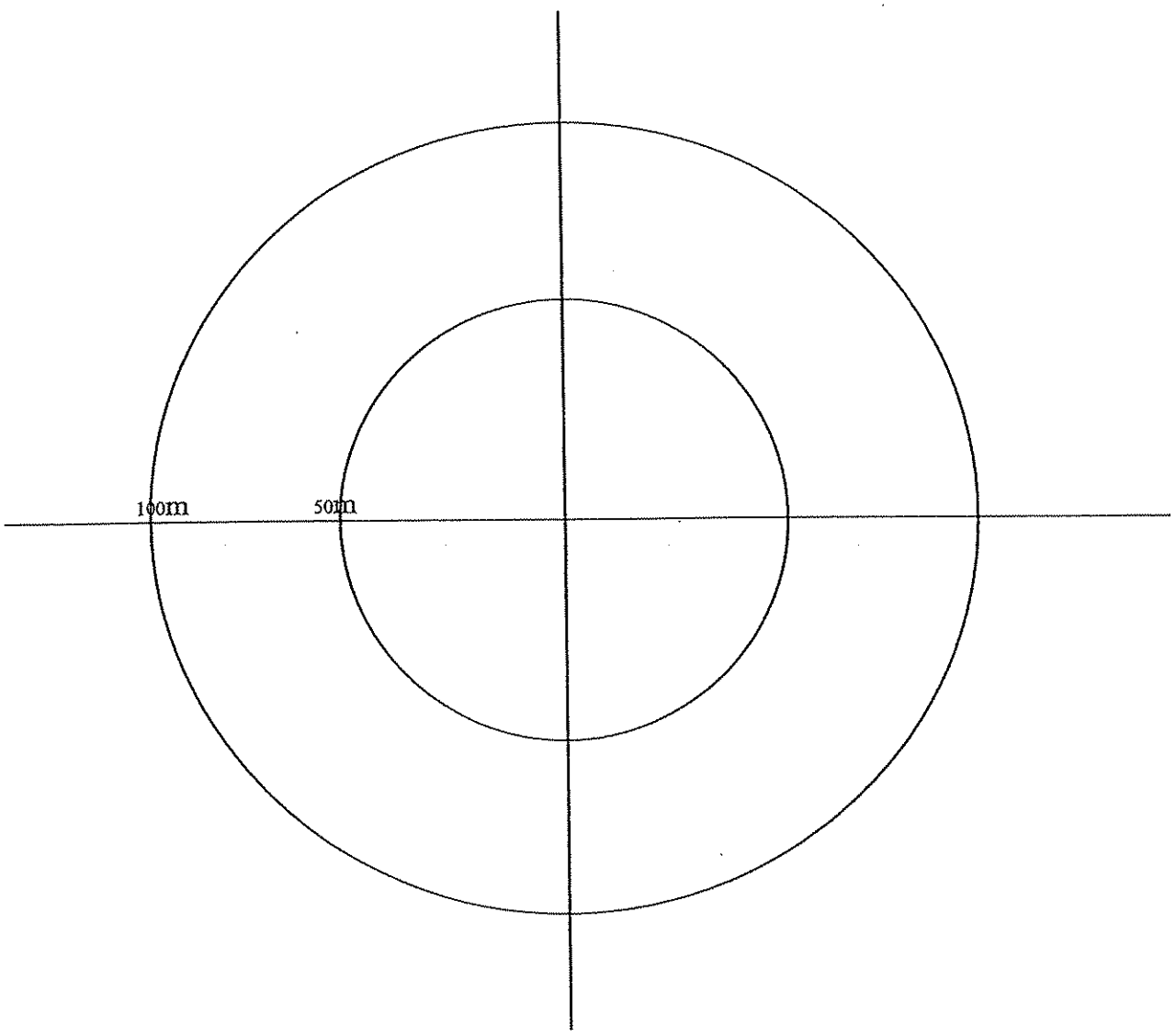
1 - BTH

2 - close to TH

3 - U BS

4 - WABS

Outside/Flythru



Point Count Data Form

Observer: SKM	Site: GES	Date: June 18 '08
Station ID: WIFPC01	Visit #: SKM 1	Start Time (HH:MM): 08:39
Beaufort Wind Scale: B 3	Cloud Cover (%): 10	Temperature (°C): 23
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RUBL RUBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

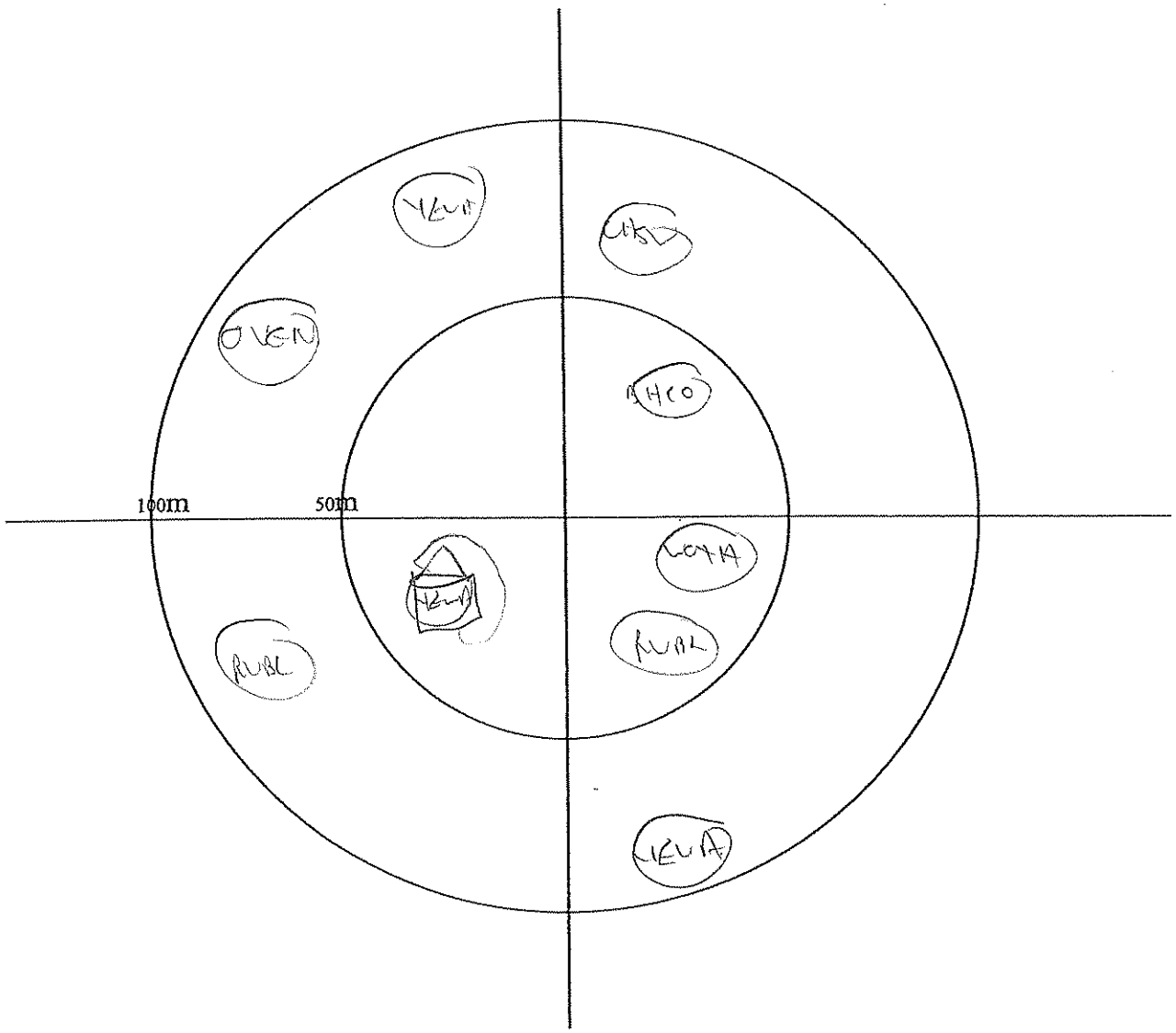
1 - BTH

2 - close to TH

3 - V BS

4 - WABS

Outside/Flythru
VOHY



Point Count Data Form

Observer: Sam.	Site: CBA	Date: June 8 '18
Station ID: W2 PP001	Visit #: 2019	Start Time (HH:MM): 07:39
Beaufort Wind Scale: B4-5	Cloud Cover (%): 50	Temperature (°C): ~20°
Precipitation: -	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

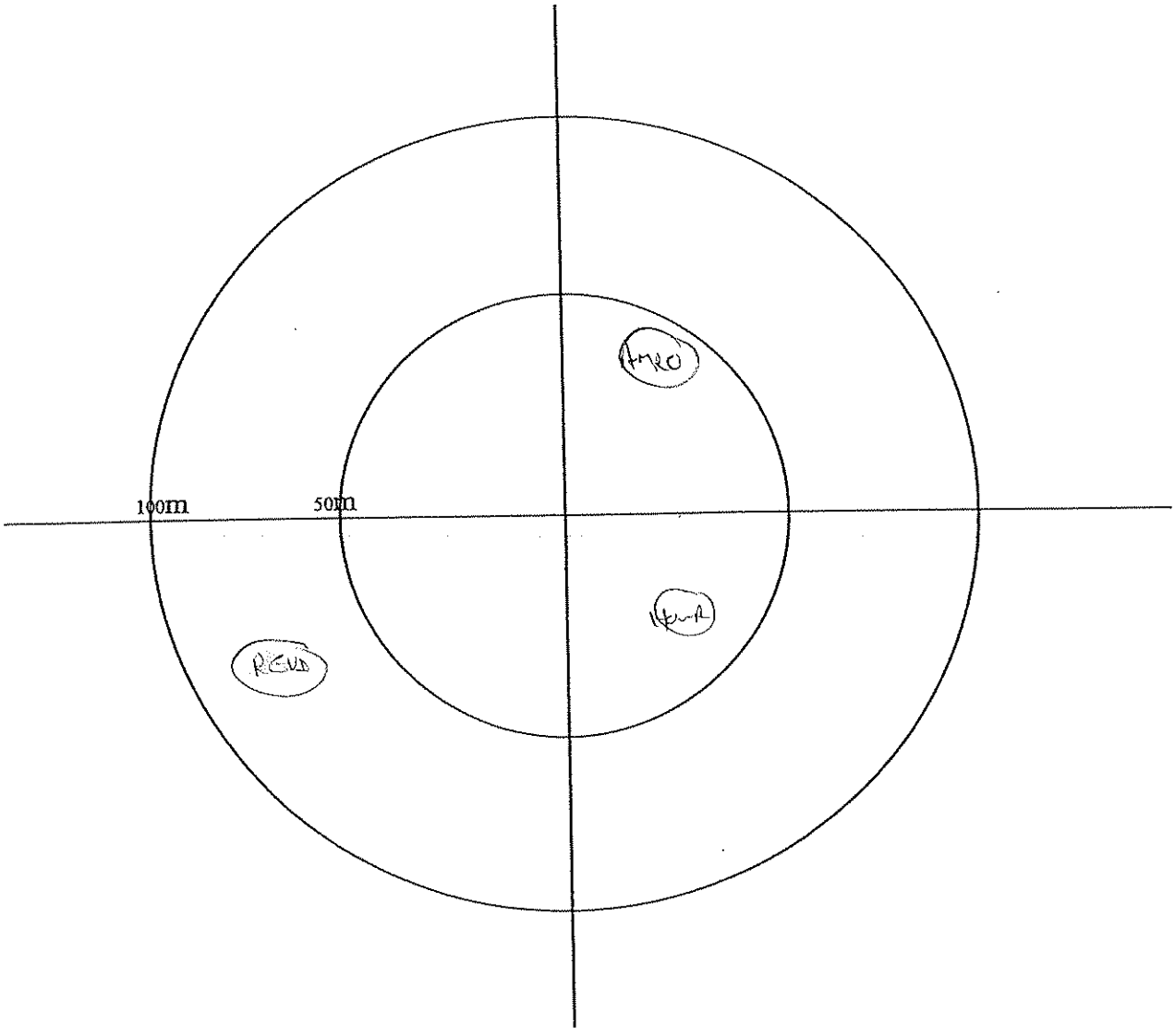
Symbols

- RWBL — Single bird, singing/calling
- RWBL ↔ RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - W BS
4 - WABS

Outside/Flythru
RGVI
AmCR



Wetland Point Count Data Form

Observer: skm	Site: GES	Date: June 10/08
Station ID: MM01	Visit #: SuM1	Start Time (HH:MM): 19:24
Beaufort Wind Scale: B3 NW	Cloud Cover (%): 10	Temperature (°C): 14
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers		
Species	Tally	No.
TRES	1	1
BANS	1	1

Symbols

Singing/calling bird RWBL

Simultaneous song/diff. birds RWBL — RWBL

Pair together SWSP

Family group (incl. # of adults) CAGO

Obs. but not calling or singing GTBH

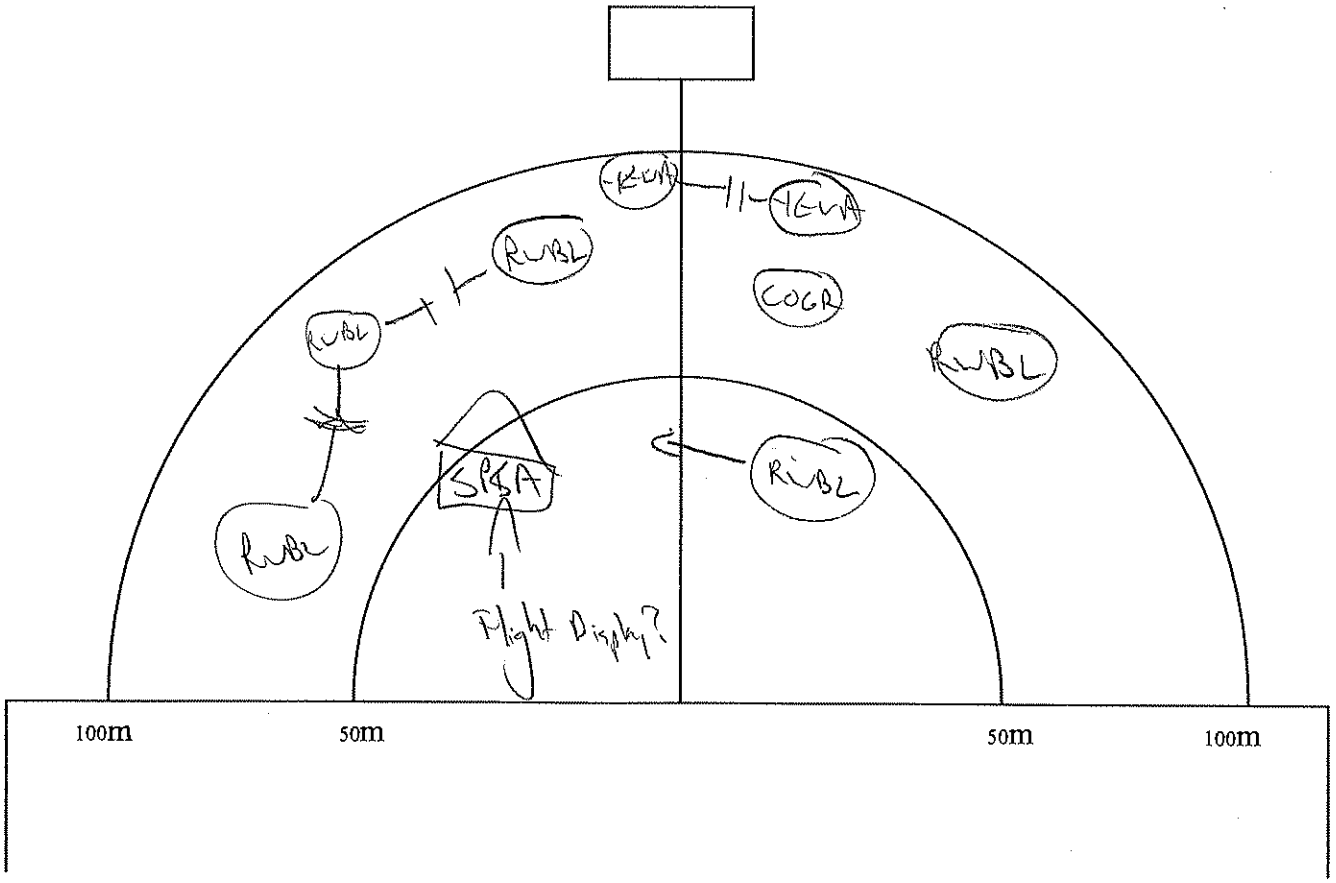
Known change in position. RWBL → RWBL

Nest ☆ TRES

Outside/Flythru	
BLJA	1
COGR	6
CHST	100
BAOR	1

BULL

GREEN



Point Count Data Form

Observer: Sam	Site: GC5	Date: June 24 '08
Station ID: PP 22	Visit #: Sum 2	Start Time (HH:MM): 07:49
Beaufort Wind Scale: 2 NE	Cloud Cover (%): 0	Temperature (°C): 17
Precipitation: —	Visibility: —	
Remarks:		

Aerial Foragers	
Species	Tally

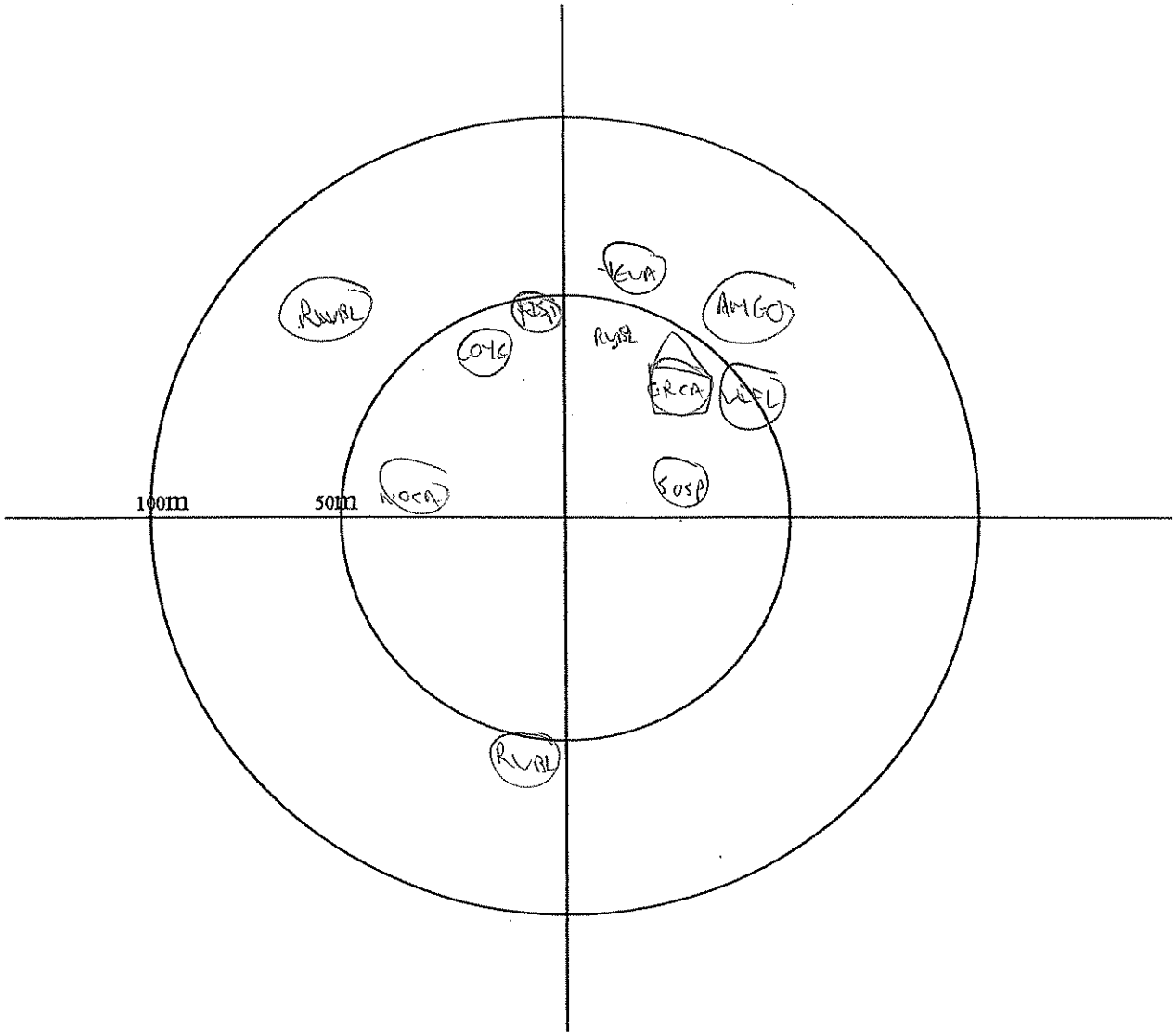
Symbols

- RWBL — Single bird, singing/calling
- RWBL ⟷ RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WA BS

Outside/Flythru
AMCR
RWBL
MODO
AMGO



Point Count Data Form

Observer:	Site:	Date:
Station ID: AF20	Visit #:	Start Time (HH:MM): 05:04
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

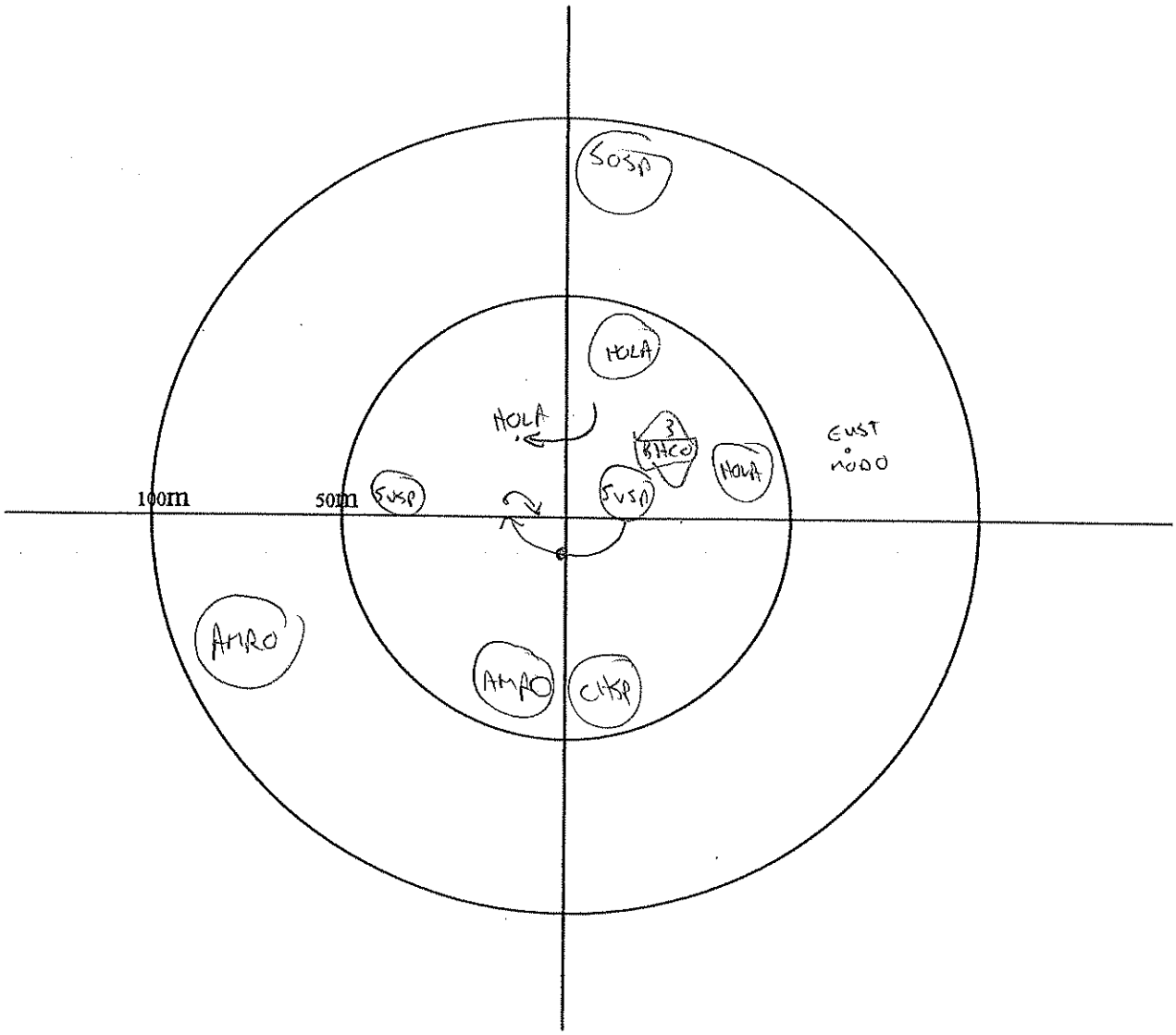
Symbols

- SWBL — Single bird, singing/calling
- SWBL + SWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru	
EUST	1
AMRO	1
RUBL	1
RGPT	
AMCR	



Point Count Data Form

Observer: Skm	Site: CES	Date: June 24
Station ID: FP14	Visit #: sum2	Start Time (HH:MM): 05:25
Beaufort Wind Scale: B1	Cloud Cover (%): 0	Temperature (°C): 14
Precipitation: —	Visibility: —	
Remarks:		

Aerial Foragers	
Species	Tally

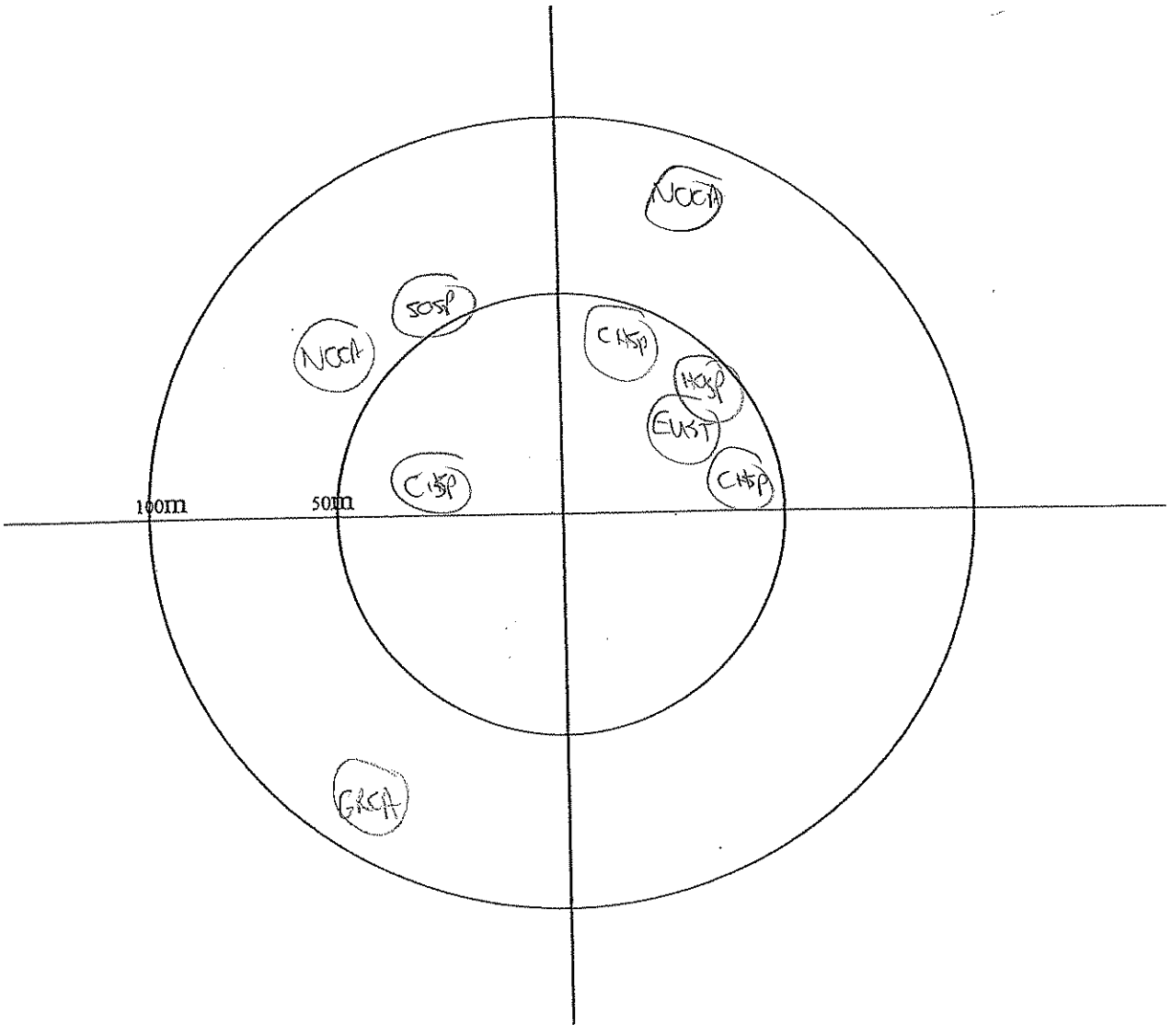
Symbols

- RWBL — Single bird, singing/calling
- RWBL — RWBL — # diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - UBS
4 - WABS

Outside/Flythru
CCGR ~~IN~~ NC 1
AMCR 1
GRCA 1
AMRO 1
RWBL 1



Point Count Data Form

Observer:	Site:	Date:
Station ID: FF19	Visit #:	Start Time (HH:MM): 05:36
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C): 15
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RUBL — Single bird, singing/calling

RUBL — RUBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

1 - BTH

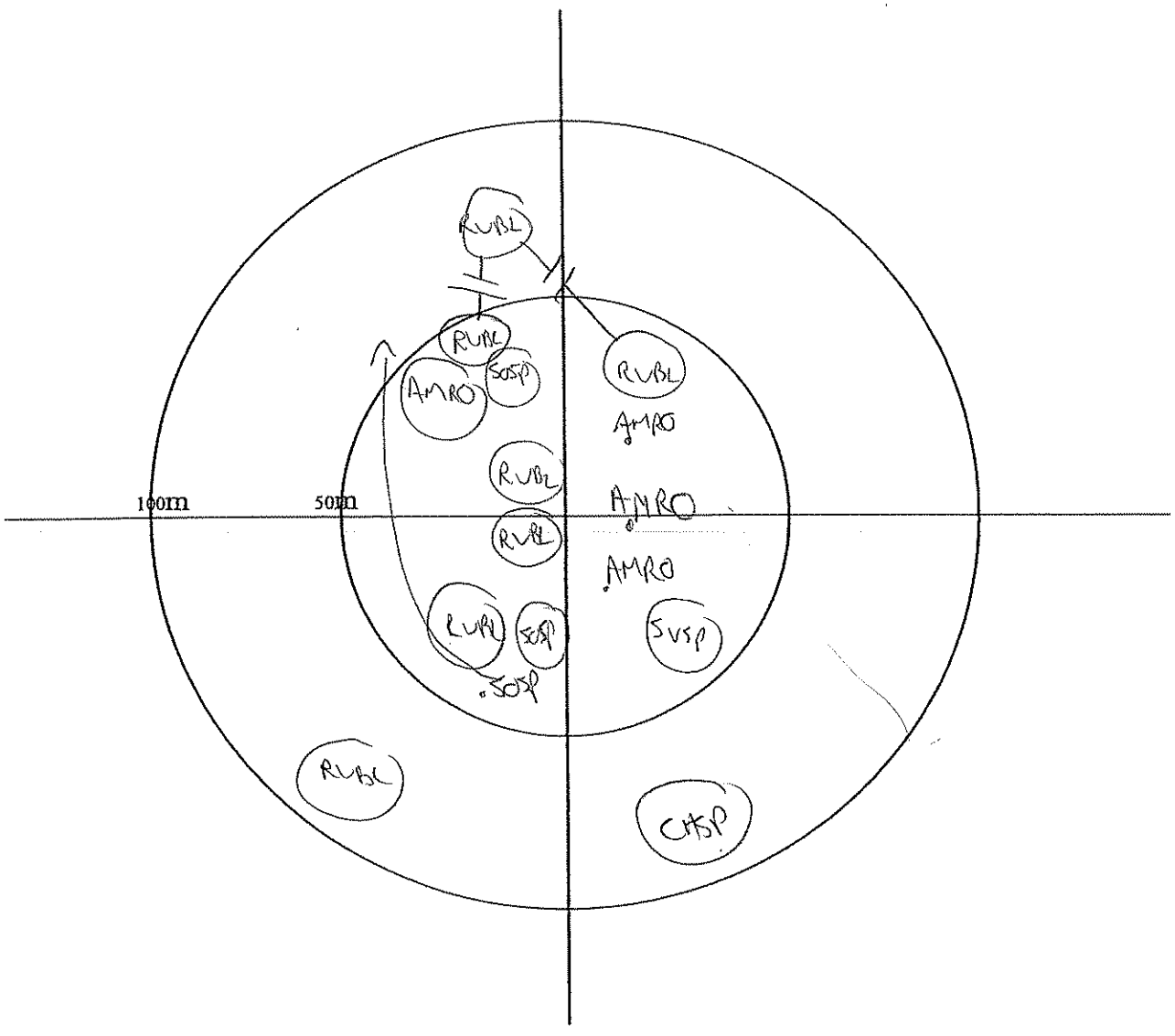
2 - Close to TH

3 - U BS

4 - WA BS

Outside/Flythru
AMRO
RUBL IIII
HOSP
BACO
EUST IIII (CF)
MODO

CCGR (CF) IIII IIII II



Point Count Data Form

Observer: SKM	Site: GES	Date: June 24
Station ID: PT 11	Visit #: SUM 2	Start Time (HH:MM): 06:16
Beaufort Wind Scale: 1	Cloud Cover (%): 0	Temperature (°C): 15
Precipitation: —	Visibility: —	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

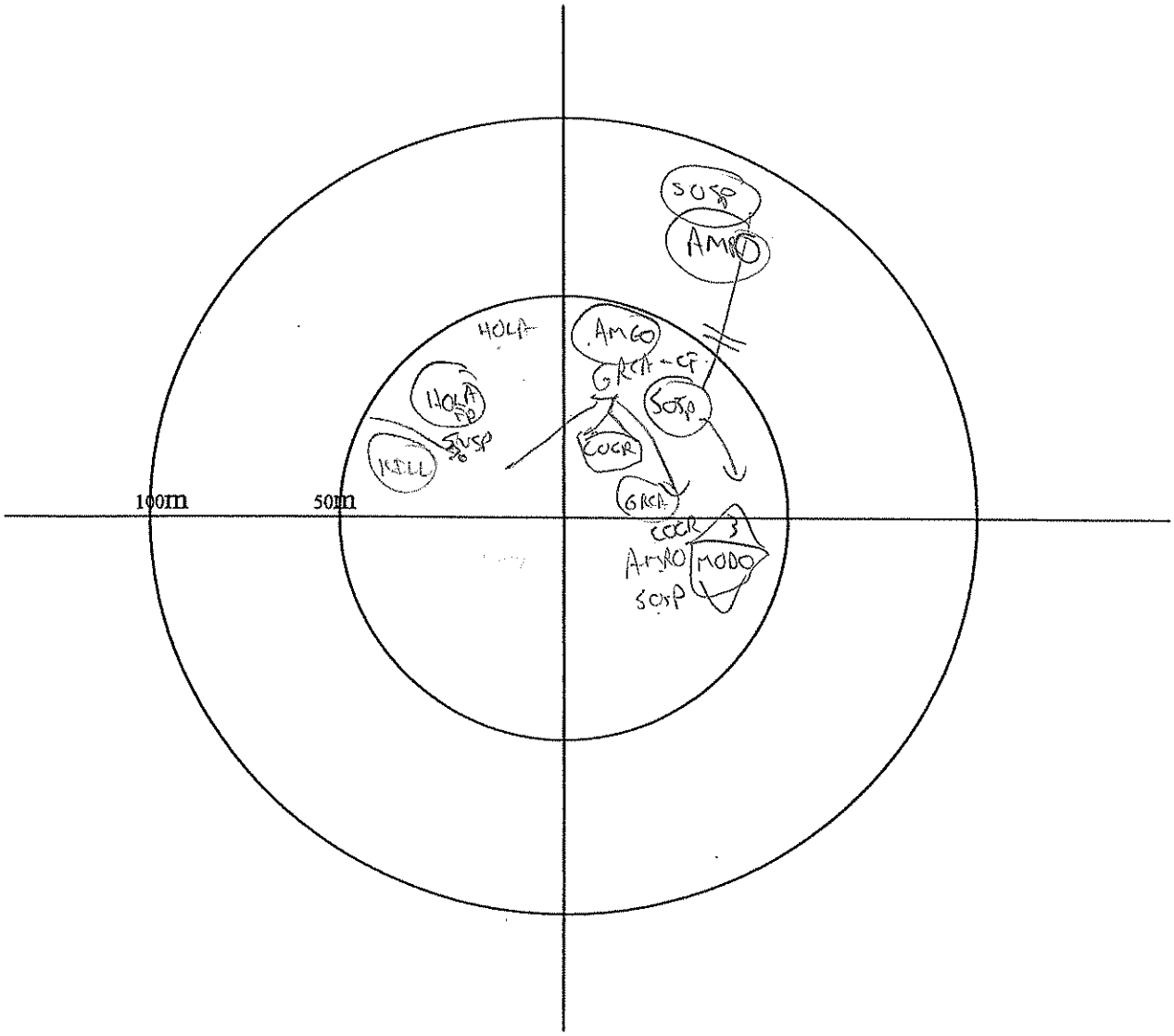
1 - BTH

2 - close to TH

3 - U BS

4 - WA BS

Outside/Flythru
AMCR
RWBL 1
EUST 1



Point Count Data Form

Observer:	Site:	Date:
Station ID: FF17	Visit #:	Start Time (HH:MM): 0633
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

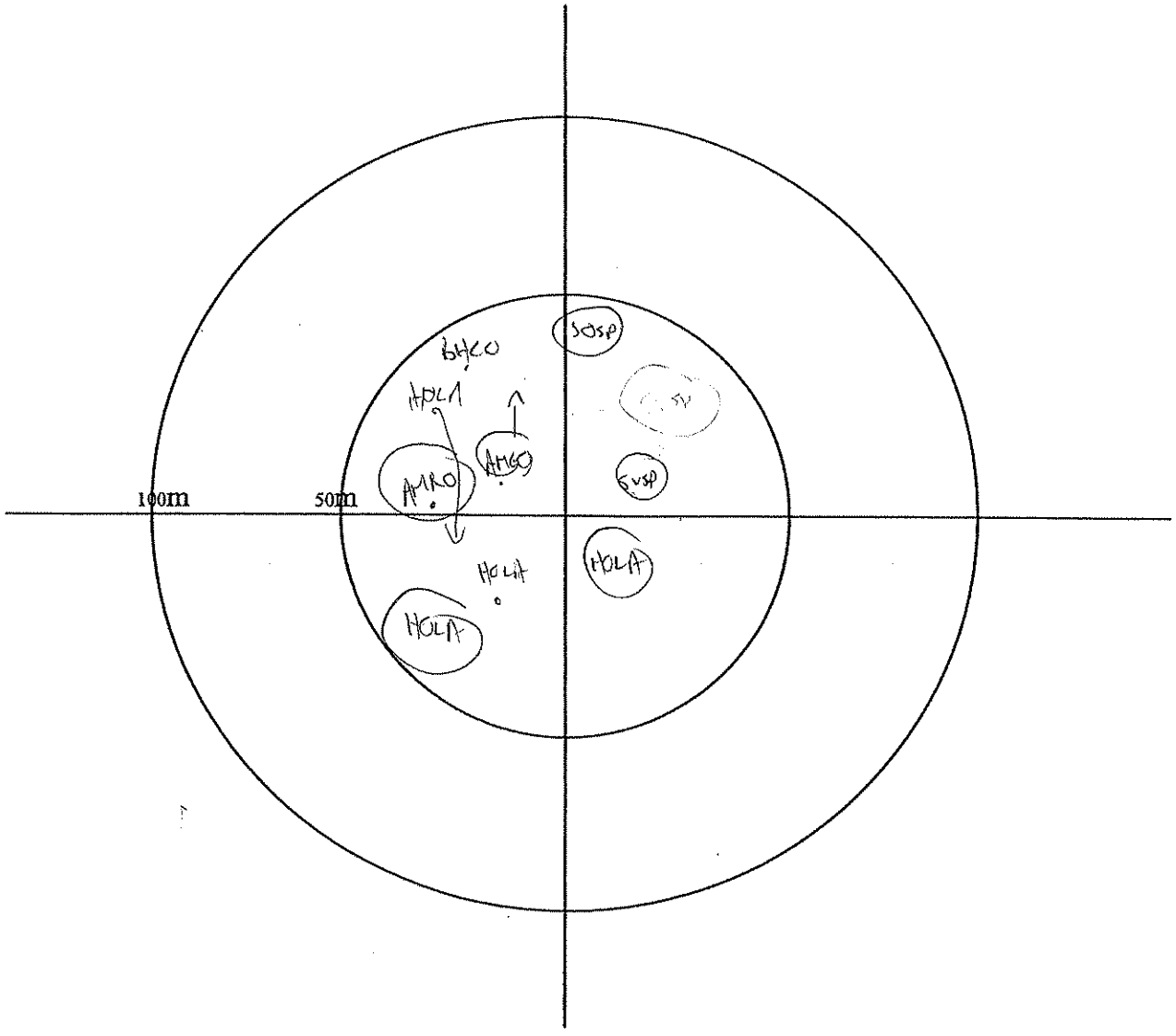
- (RWBL) Single bird, singing/calling
- (RWBL)→←(RWBL) Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - WBS
4 - WABS

Outside/Flythru
NOCA
AMCR
AMRO
~~EUST~~
RWBL
MODO 111

COGR 11-CF



Point Count Data Form

Observer: SJM	Site: C65	Date: June 24 2008
Station ID: R16	Visit #: Sum 2	Start Time (HH:MM): 05:00
Beaufort Wind Scale: R1 MV	Cloud Cover (%): 0	Temperature (°C): 14
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

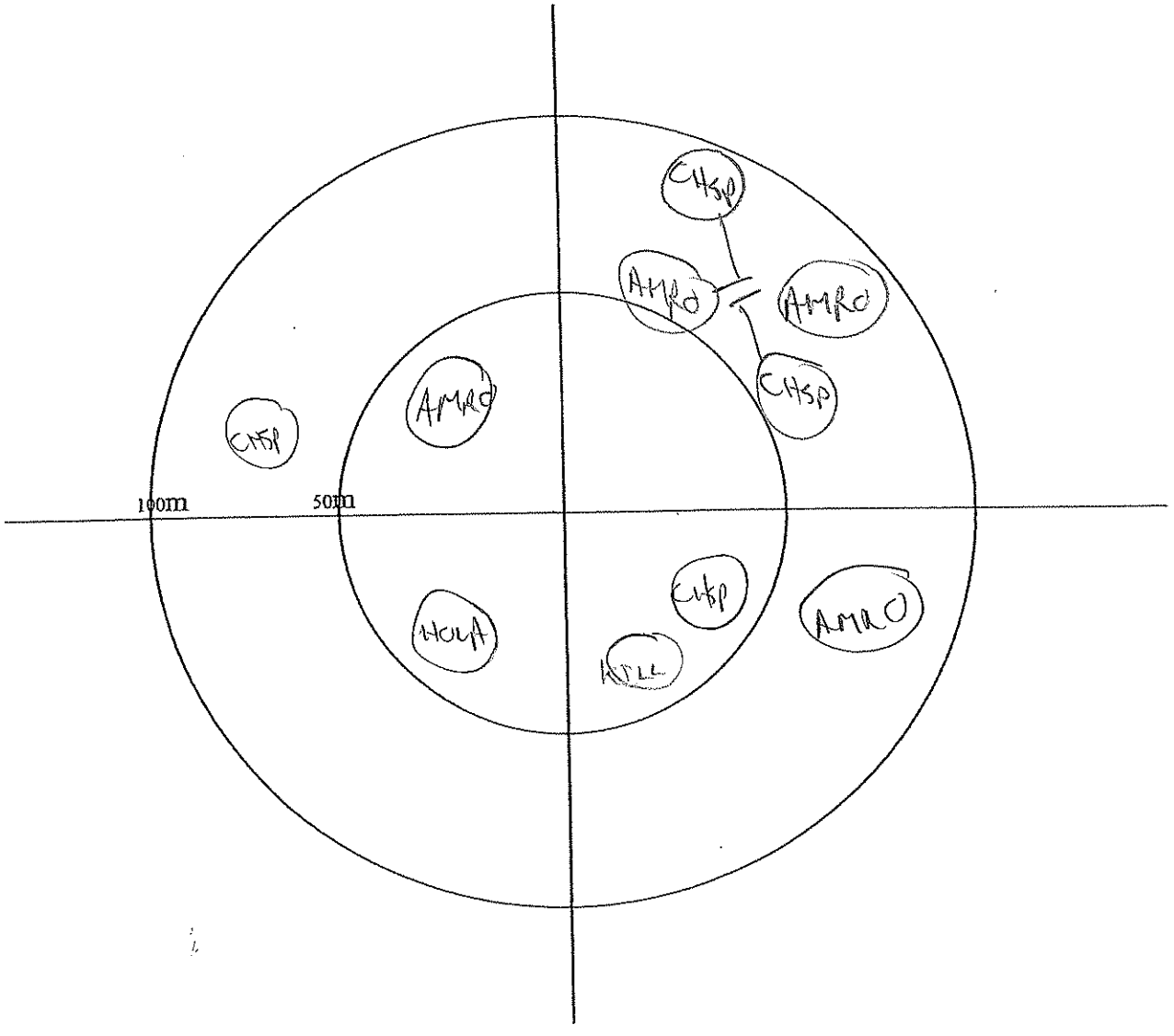
Symbols

- RWBL — Single bird, singing/calling
- RWBL — RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - UBS
4 - WABS

Outside/Flythru
NOCA
AMRO
CAC 0 - 5



Point Count Data Form

Observer:	Site:	Date:
Station ID: FF 15	Visit #:	Start Time (HH:MM): 05:13
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

1 - BTH

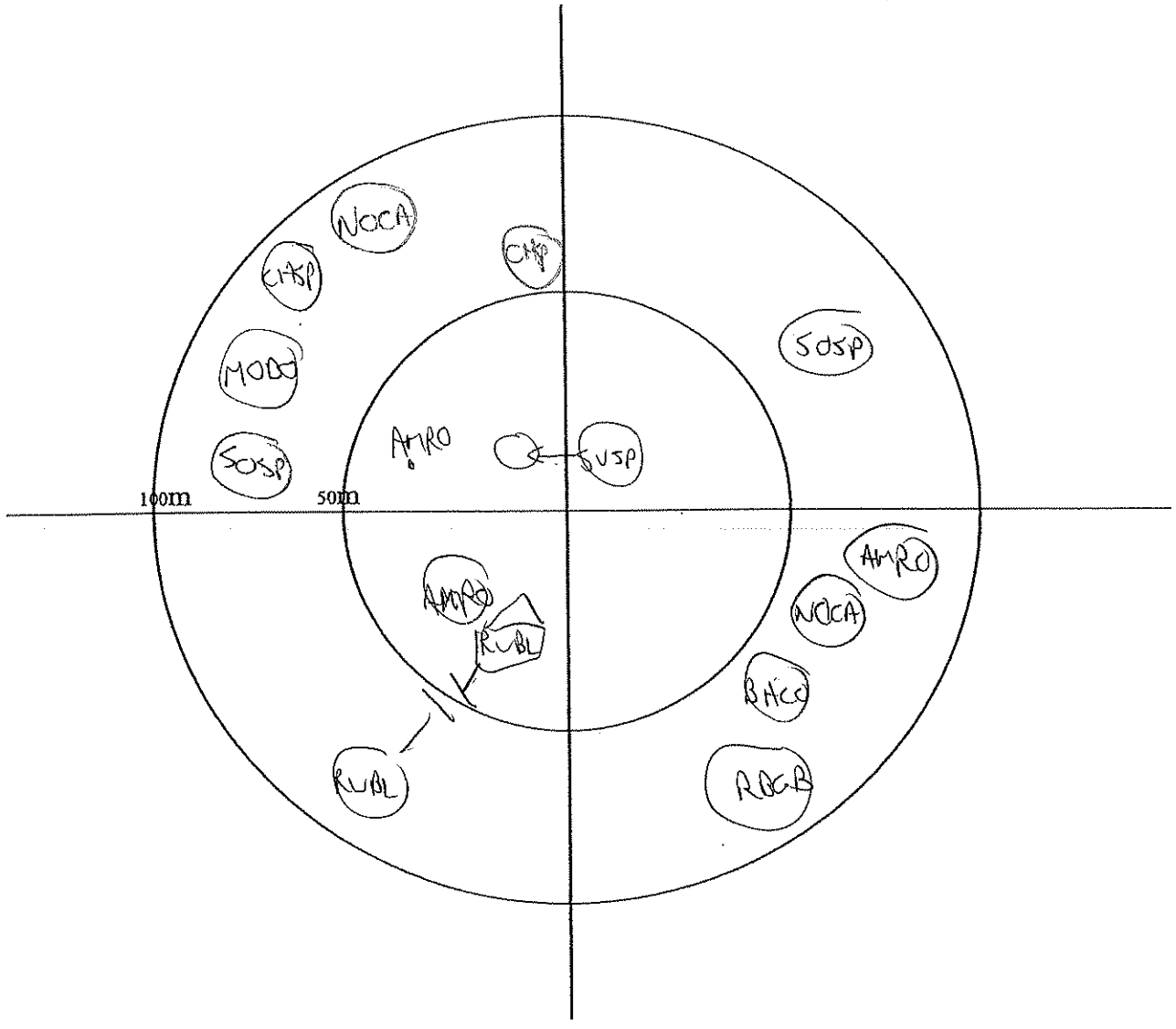
2 - close to TH

3 - U BS

4 - WA BS

Outside/Flythru
FLYT

Skunk



Point Count Data Form

Observer:	Site:	Date:
Station ID: PF13	Visit #:	Start Time (HH:MM): 08:25
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

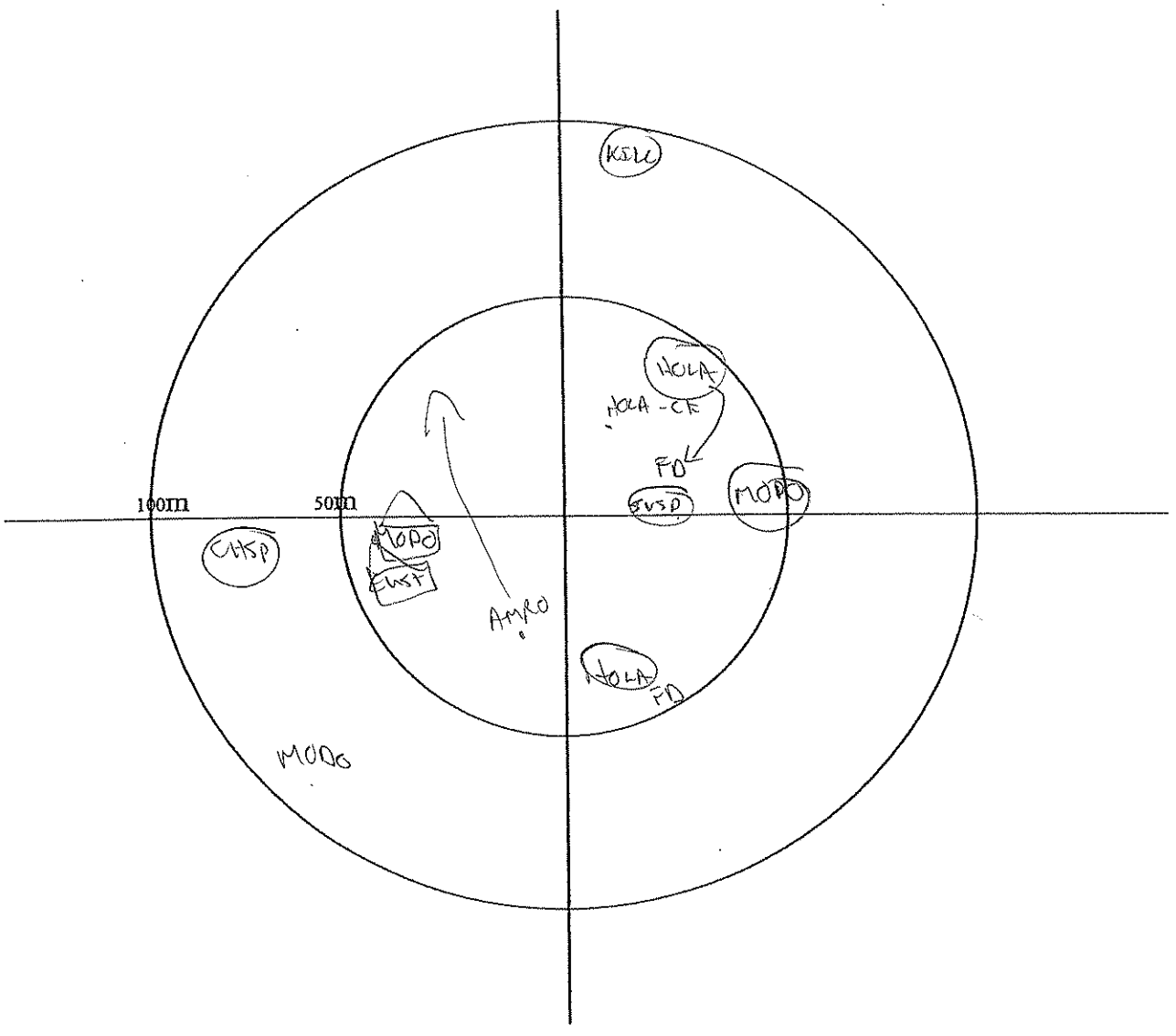
Symbols

- SWBL — Single bird, singing/calling
- RWBL RWBL — # diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - V BS
4 - WABS

Outside/Flythru
COGR -
AMCR
EUST-CF III
AMGO
BHCO



Point Count Data Form

Observer: Sum.	Site: GESNER	Date: June 25
Station ID: EF 12	Visit #: Sum 2	Start Time (HH:MM): 06:06
Beaufort Wind Scale: 1	Cloud Cover (%): 0	Temperature (°C): 16
Precipitation: ___	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally
CLSW	11

Symbols

RWBL — Single bird, singing/calling

RWBL RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

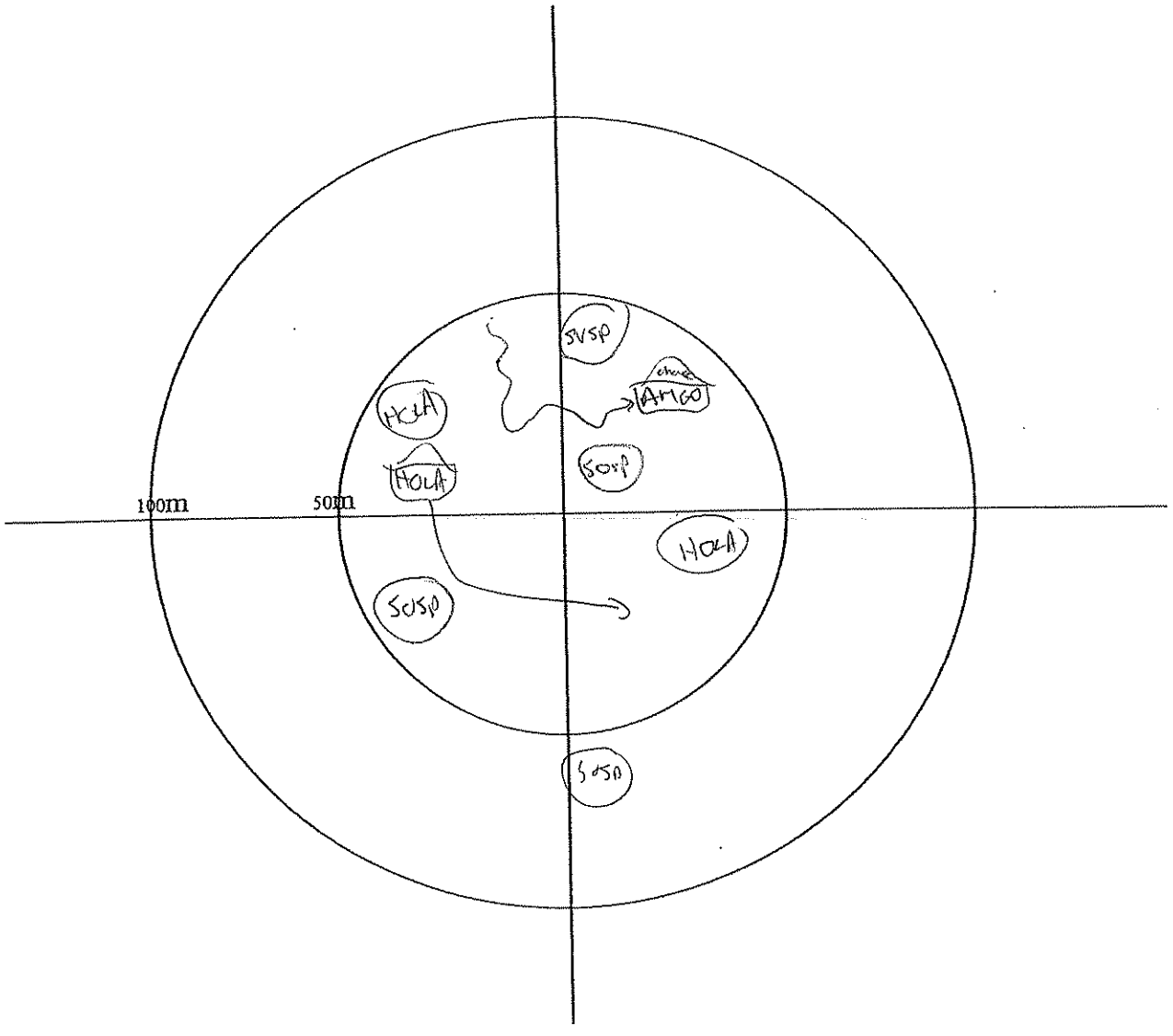
1 - BTH

2 - close to TH

3 - U BS

4 - WA BS

Outside/Flythru
AMGO 4
DCAI THL PINE 11 +15
ANCR
MOOO
AMRO 1



Point Count Data Form

Observer:	Site:	Date:
Station ID: RP10	Visit #:	Start Time (HH:MM): 06:01
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs, but not calling/singing

Known change in position

Height

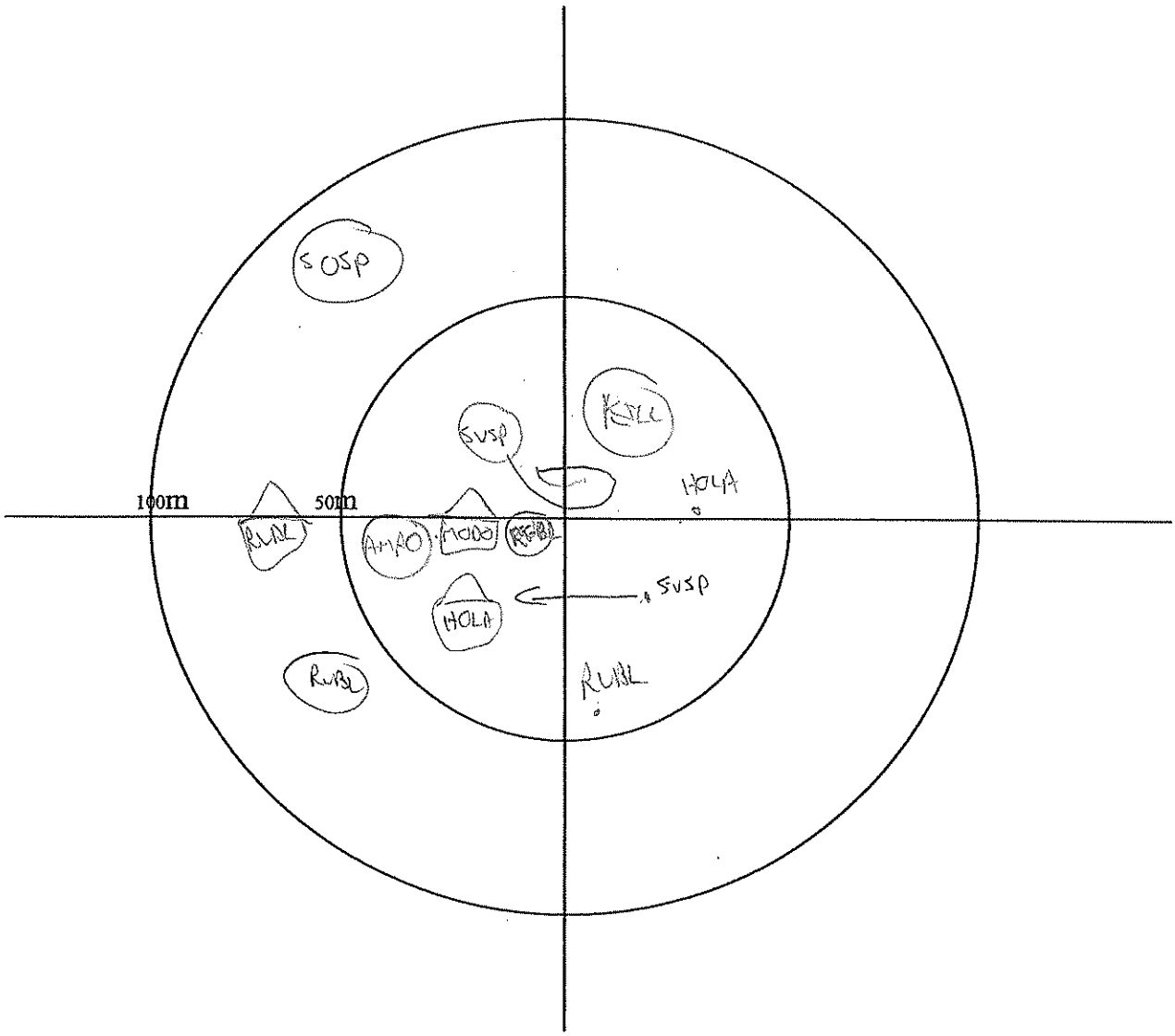
1 - BTH

2 - close to TH

3 - WBS

4 - WABS

Outside/Flythru
RWBL 1111
MOBO 11
COGR 1111
EUST 1111
NOCA 1



Point Count Data Form

Observer: Sum	Site: GCS	Date: June 24
Station ID: RF9	Visit #: Sum 2	Start Time (HH:MM): 05:48
Beaufort Wind Scale: B1	Cloud Cover (%): 0	Temperature (°C): 15
Precipitation: —	Visibility: —	
Remarks:		

Aerial Foragers	
Species	Tally
BRWS	IIII III

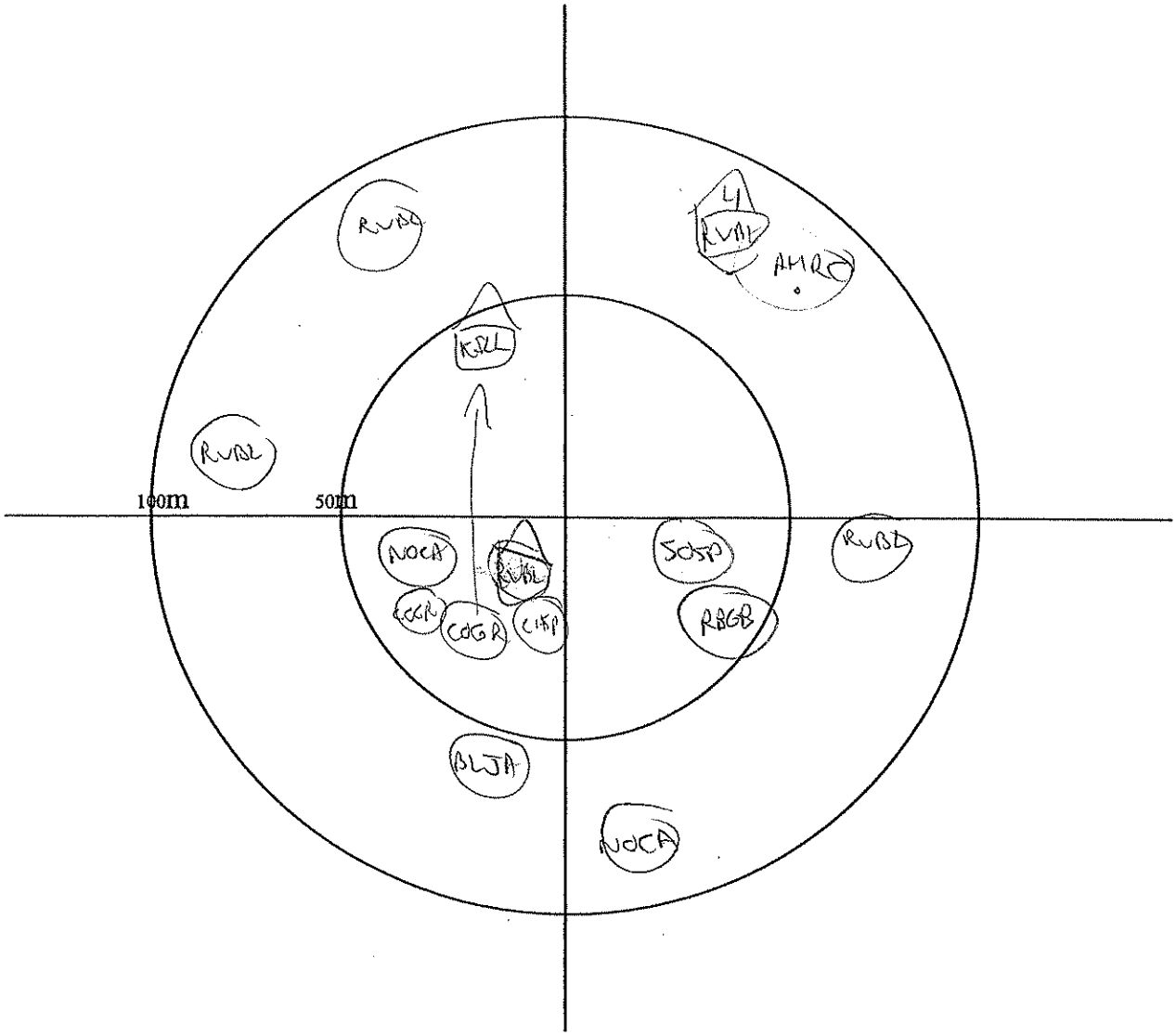
Symbols

- RWBL — Single bird, singing/calling
- RWBL ⟷ RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WA BS

Outside/Flythru
COGR TH 1



Point Count Data Form

Observer: SKM	Site: Gesner	Date: June 25/08
Station ID: FB4	Visit #: Sum 2	Start Time (HH:MM): 05:37
Beaufort Wind Scale: 1 SW	Cloud Cover (%): 0	Temperature (°C): 16
Precipitation: —	Visibility: —	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ↔ RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

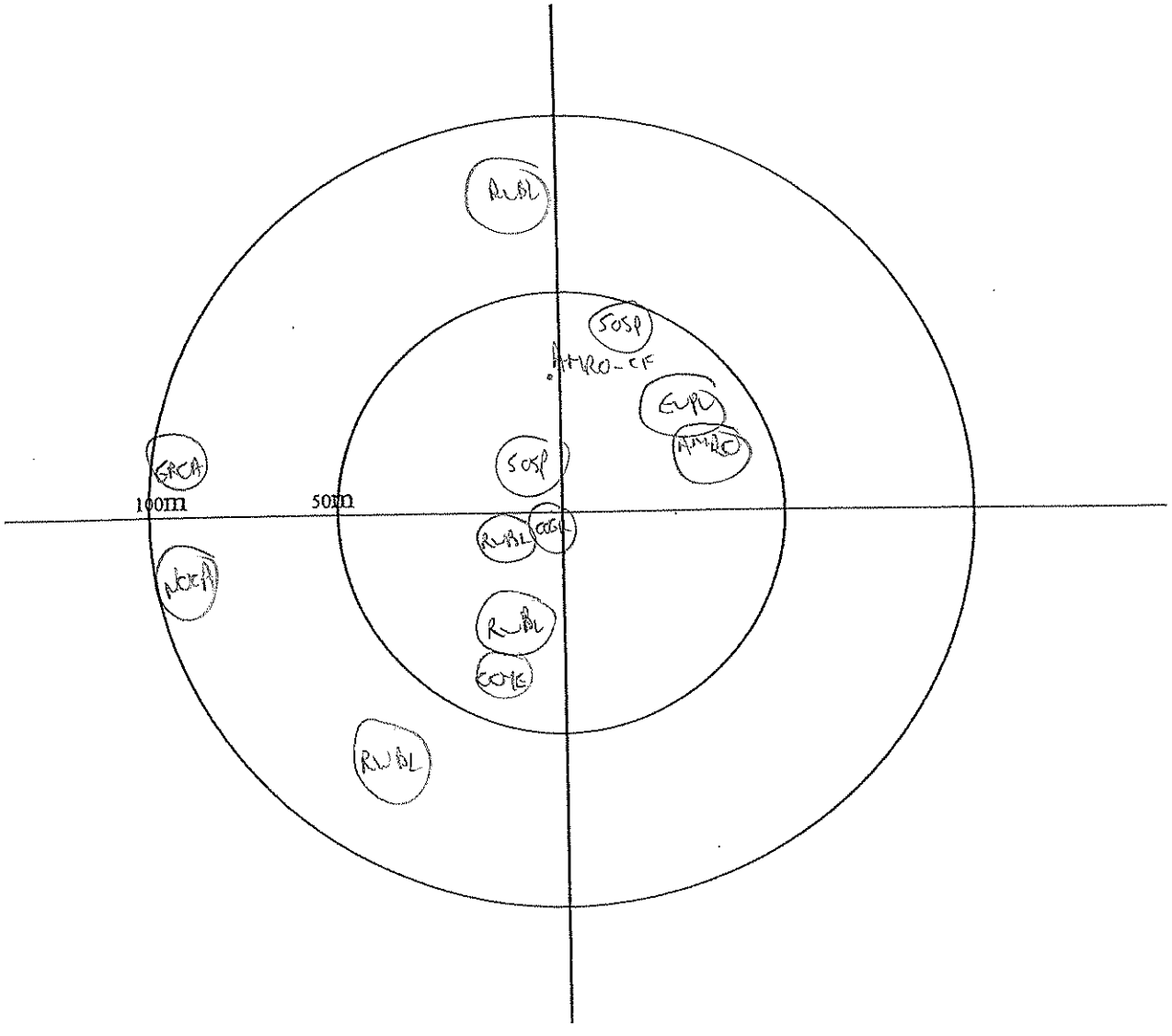
1 - BTH

2 - Close to TH

3 - U BS

4 - WA BS

Outside/Flythru
COGR III
RWBL III
GWST IIII
AMGO II



Point Count Data Form

Observer:	Site:	Date:
Station ID: FF1	Visit #:	Start Time (HH:MM): 05:51
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility: light low fog	
Remarks:		

Aerial Foragers	
Species	Tally
TREE	11

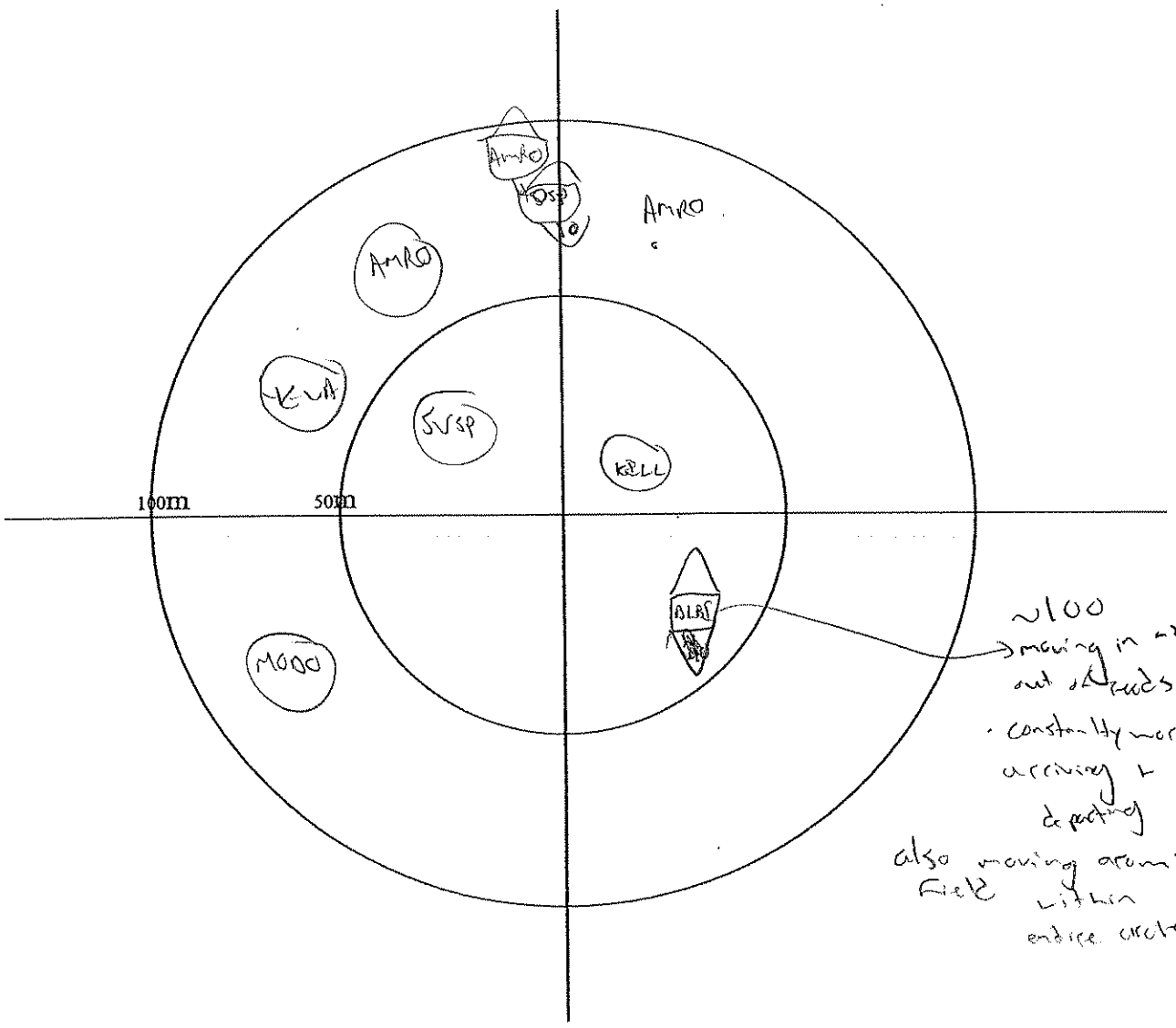
Symbols

- RWBL — Single bird, singing/calling
- RWBL — RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - V BS
4 - WA BS

Outside/Flythru
RBGR III
KILL



~100 moving in and out of circle
- constantly more arriving + departing

also moving around field within entire circle

Point Count Data Form

Observer:	Site:	Date:
Station ID: FR3	Visit #:	Start Time (HH:MM): 07:03
Beaufort Wind Scale: B2	Cloud Cover (%):	Temperature (°C): 16
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally
BRNS	TTH II

Symbols

RWBL — Single bird, singing/calling

RWBL ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

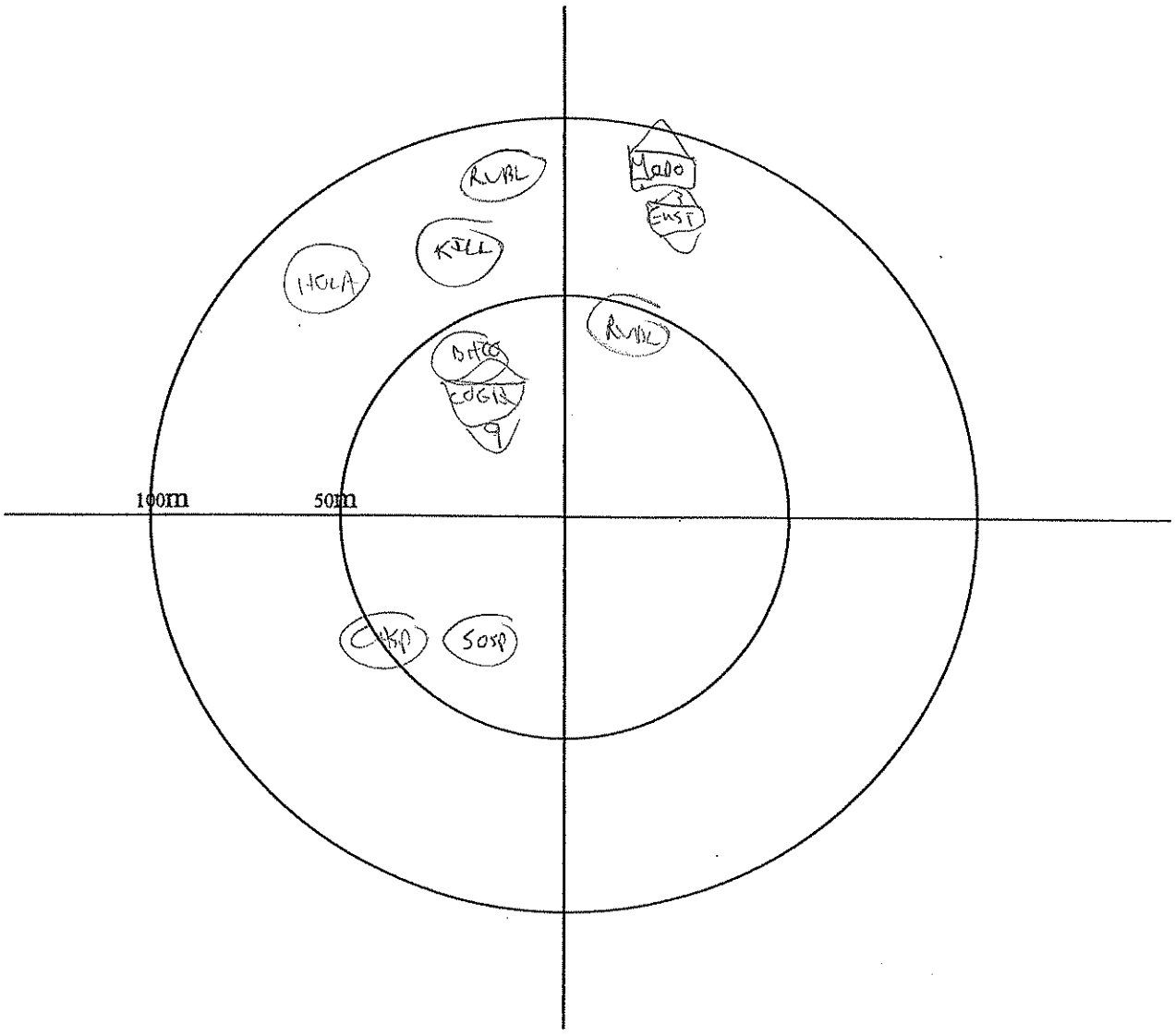
1 - BTH

2 - Close to TH

3 - V BS

4 - WA BS

Outside/Flythru
ROBI TTH
BLKI ~100 ↑ ↗ ↗
EMST 5
COGR - 4



Point Count Data Form

Observer: SKM	Site: GGS	Date: June 24
Station ID: FF7	Visit #: SKM 2	Start Time (HH:MM): 06:50
Beaufort Wind Scale: 1	Cloud Cover (%): 0	Temperature (°C): 16
Precipitation: —	Visibility: —	
Remarks:		

Aerial Foragers	
Species	Tally

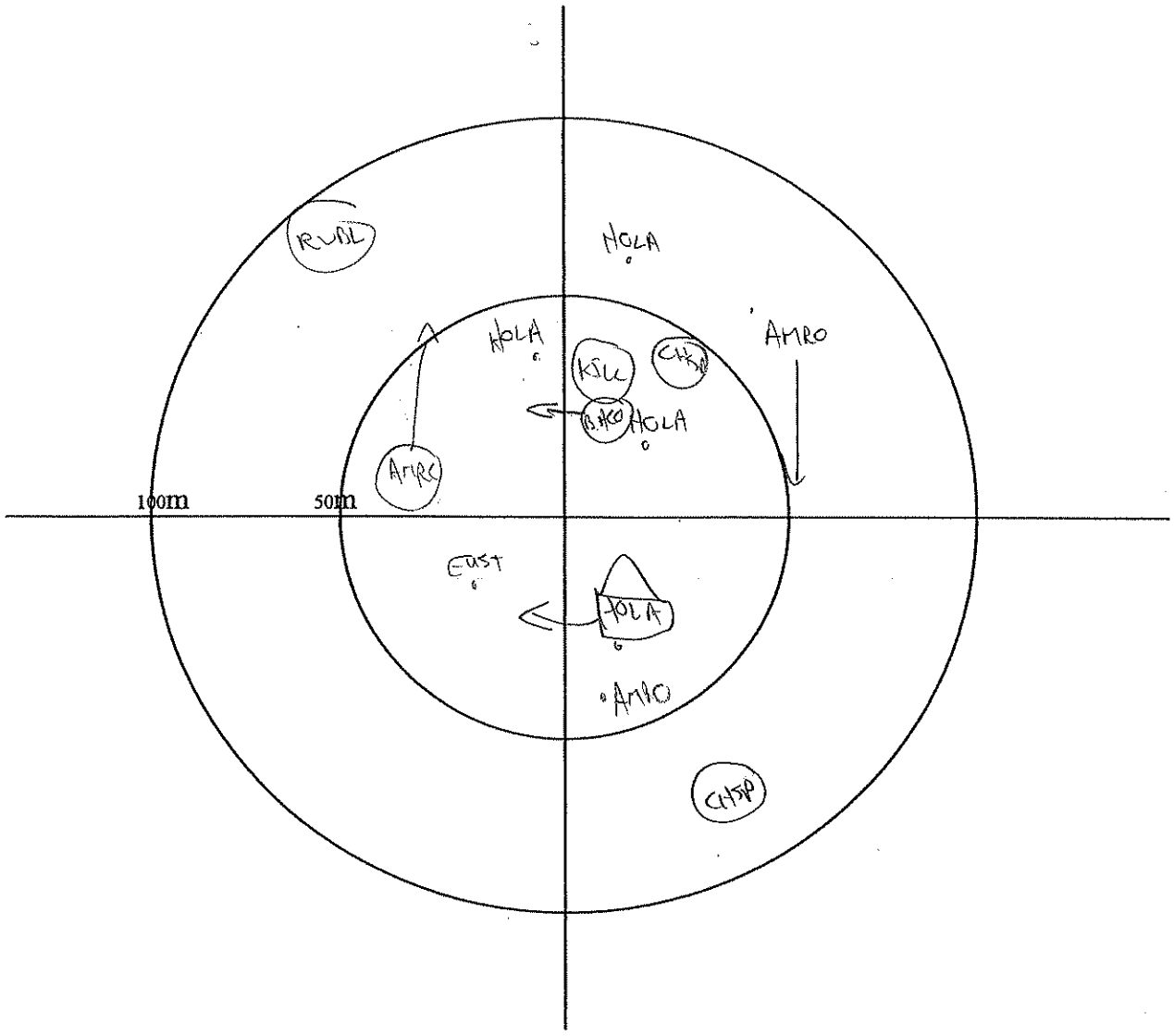
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WA BS

Outside/Flythru
AMCR
RWBL II
WILL
MOBO II
COGR
RBWO



Point Count Data Form

Observer: Shar	Site: GES	Date: June 24
Station ID: FT6	Visit #: Surv2	Start Time (HH:MM): 07:18
Beaufort Wind Scale: B1	Cloud Cover (%): 0	Temperature (°C): 16
Precipitation: —	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

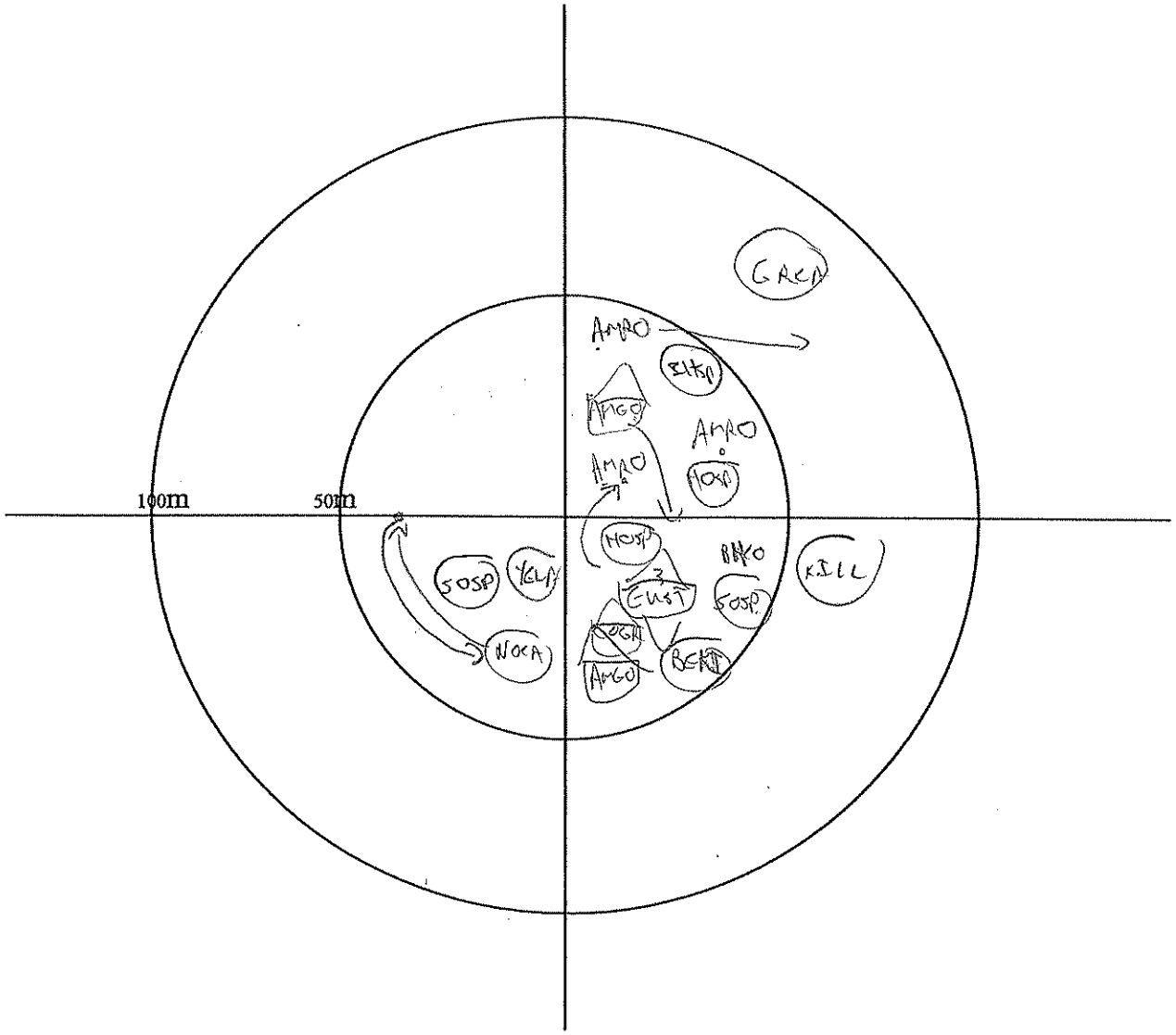
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - UBS
4 - WABS

Outside/Flythru



Point Count Data Form

Observer:	Site:	Date:
Station ID: FF5	Visit #:	Start Time (HH:MM): 07:30
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

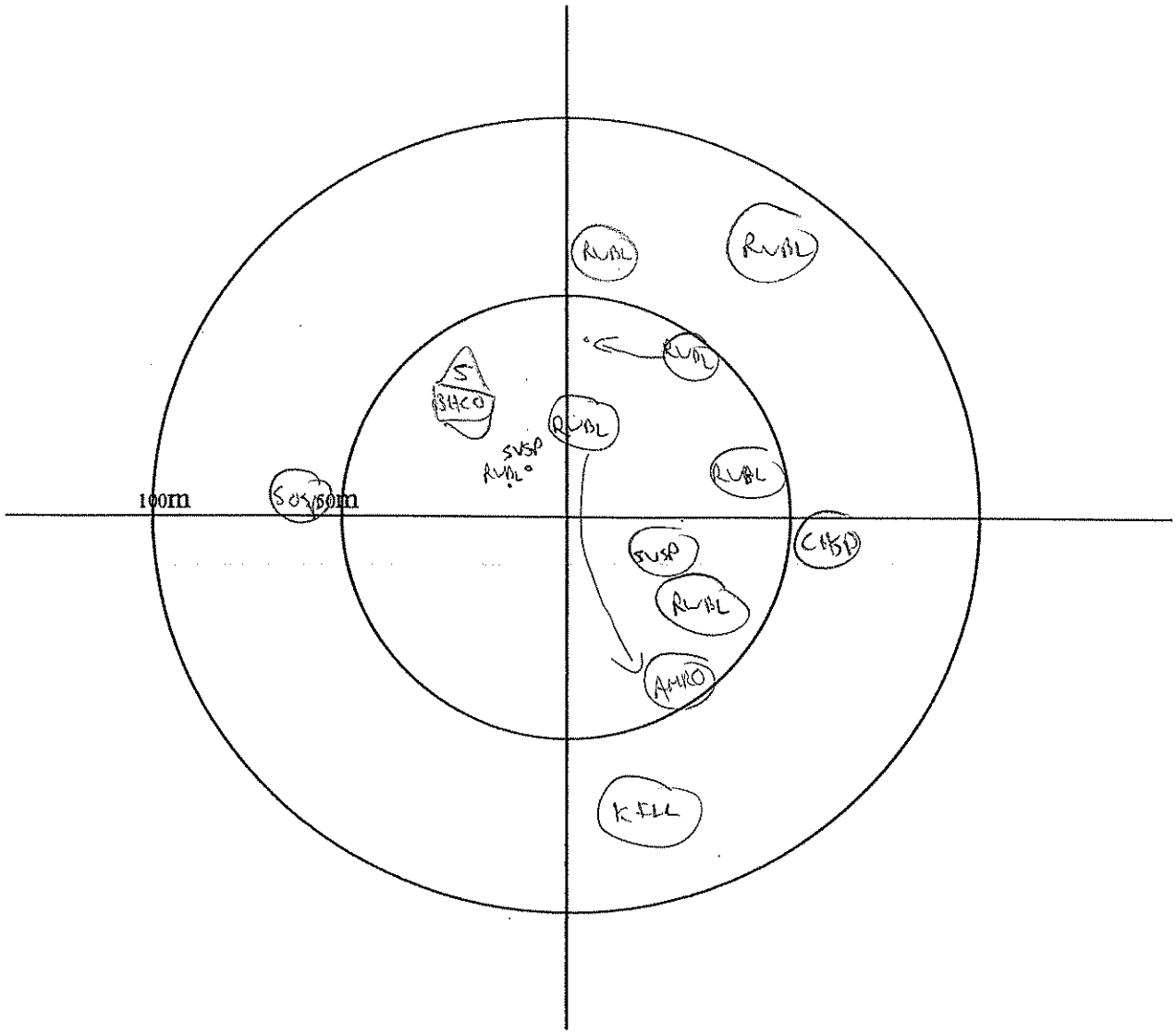
1 - BTH

2 - close to TH

3 - W BS

4 - WA BS

Outside/Flythru
EUST NW / +17
MOUO 111
RWBL
COGR 11



Point Count Data Form

Observer:	Site:	Date:
Station ID: F1 D	Visit #:	Start Time (HH:MM): 05:22
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL → ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

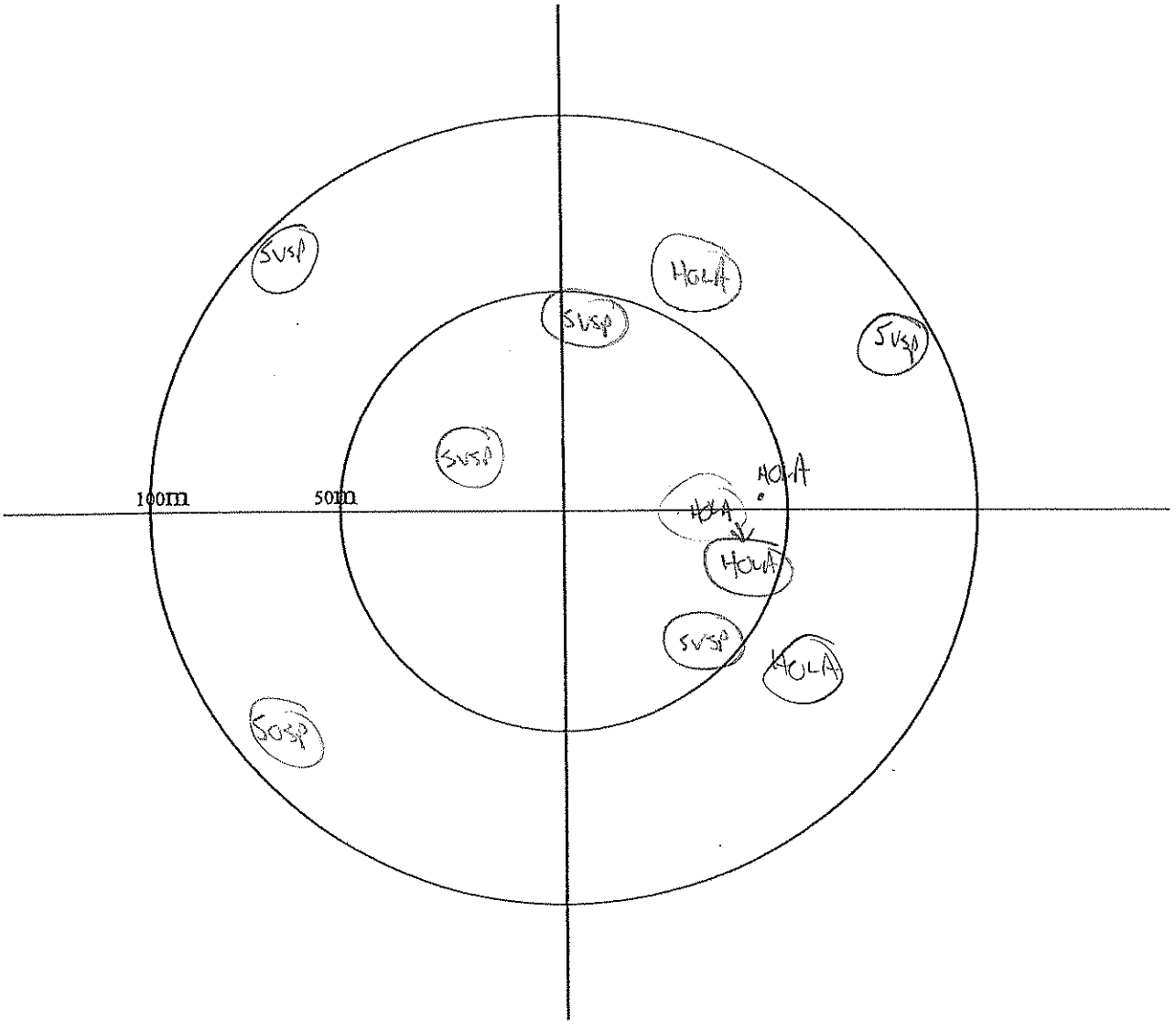
1 - BTH

2 - close to TH

3 - U BS

4 - WABS

Outside/Flythru
RWBL
NOCA
AMCR II
AMRO
EUST - IIII
COGR - II



Point Count Data Form

Observer: SKM	Site: Gesner	Date: June 25/08
Station ID: PT 1	Visit #: Sum 2	Start Time (HH:MM): 05:09
Beaufort Wind Scale: 1 SL	Cloud Cover (%): 0	Temperature (°C): 16
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

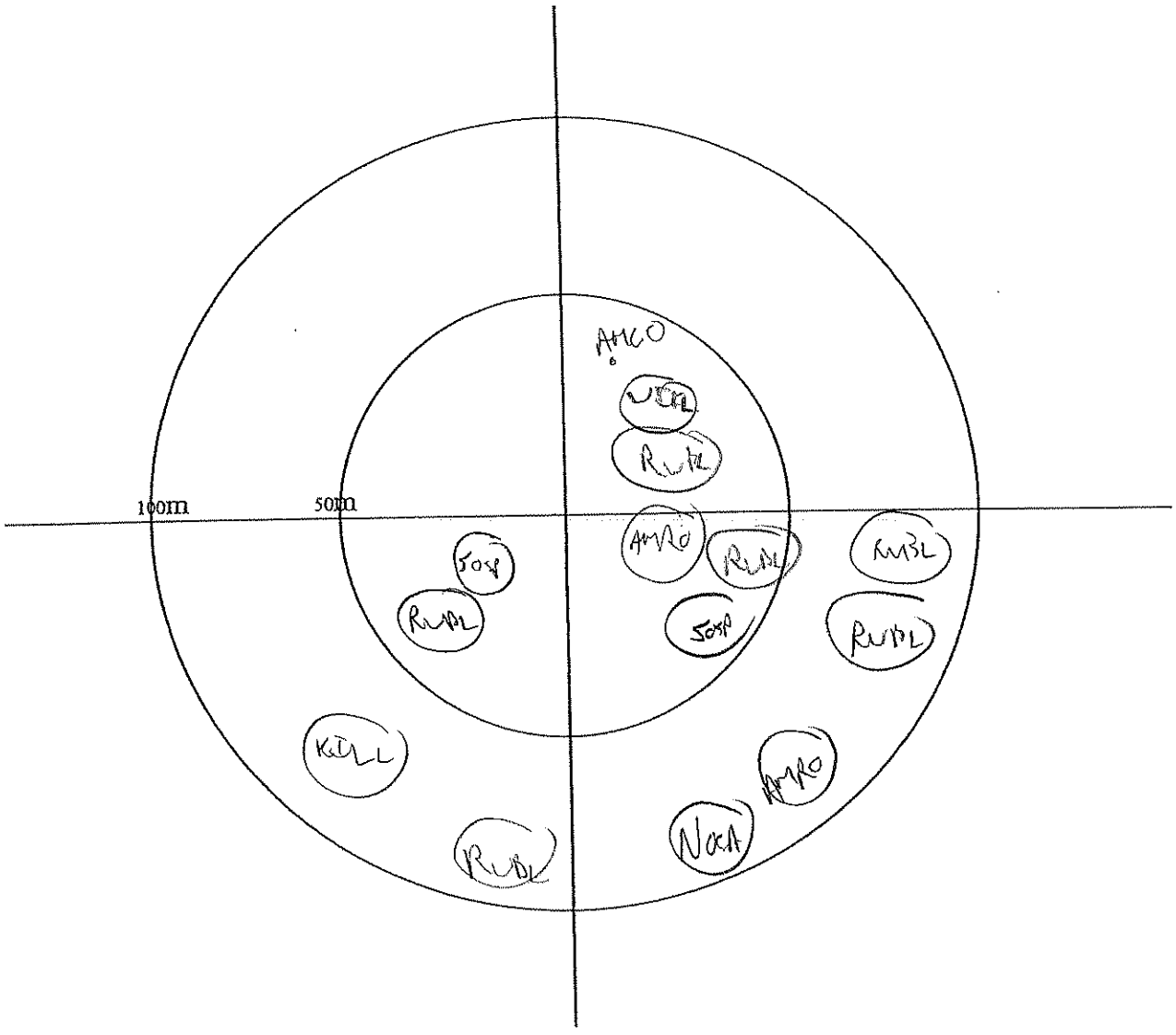
Symbols

- RWBL — Single bird, singing/calling
- RWBL — RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - U BS
4 - WABS

Outside/Flythru
RWBL
REDI III
CUST III
COGR



Wetland Point Count Data Form

Observer: [illegible]	Site: GES	Date: June 24 '08
Station ID: Marsh	Visit #: Sum 2	Start Time (HH:MM): 11:06
Beaufort Wind Scale: B3 5	Cloud Cover (%): 10	Temperature (°C): 25
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers		
Species	Tally	No.
TRES	III → 4 daily, 1 on 2	
BRWS	1	

Symbols

Singing/calling bird RWBL

Simultaneous song/diff. birds RWBL — RWBL

Pair together SWSP

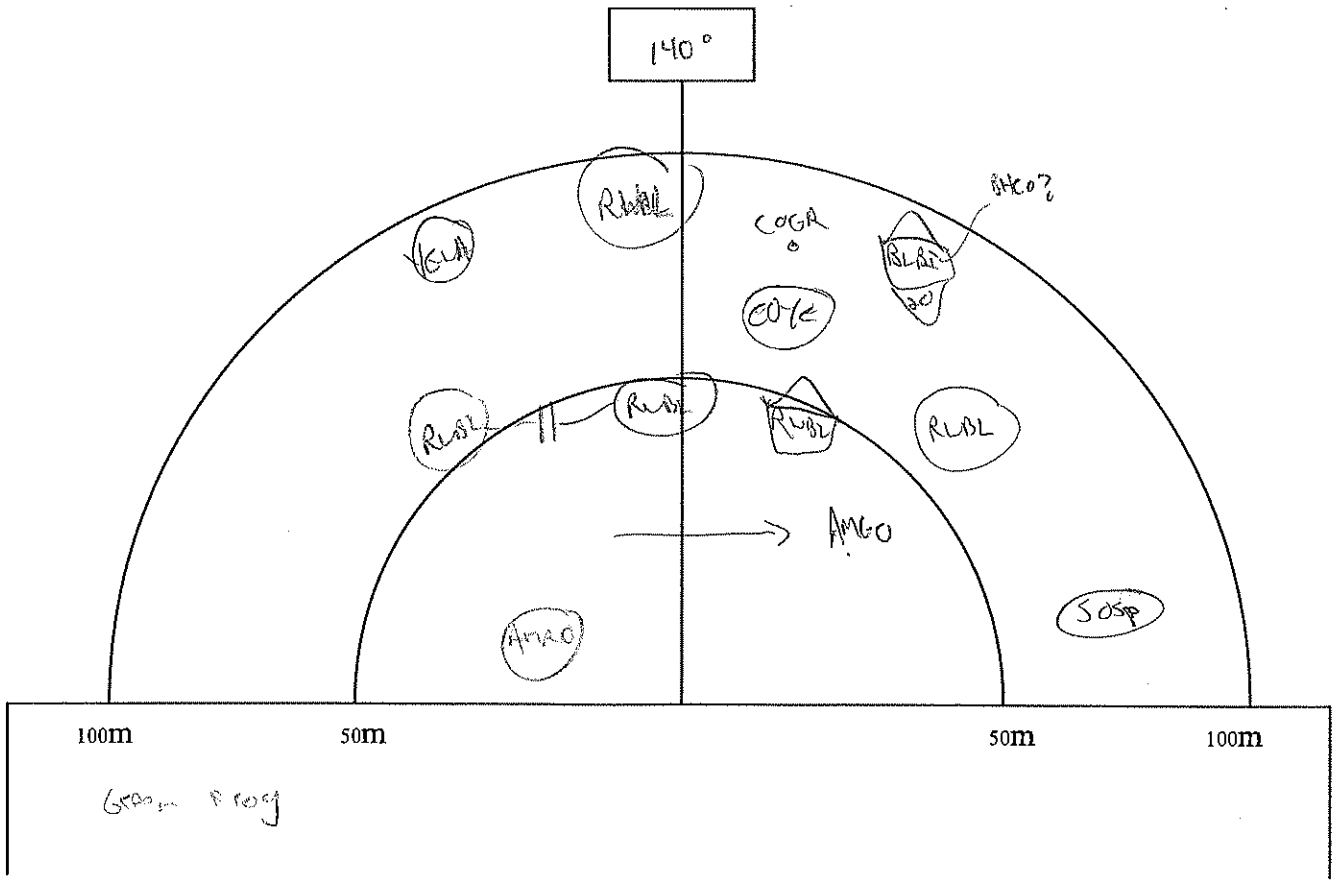
Family group (incl. # of adults) CAGO

Obs. but not calling or singing GTBH

Known change in position. RWBL → RWBL

Nest ☆ TRES

Outside/Flythru	
BLBI - 20	
AMCR	
NOCA - 11	
CHST - 1	
AMGO - 1	



Grass Marsh

Point Count Data Form

Observer: SKM	Site: GES	Date: June 25/04
Station ID: U1FSPC01	Visit #: sum2	Start Time (HH:MM): 07:07
Beaufort Wind Scale: B1	Cloud Cover (%): 0	Temperature (°C): 18
Precipitation: —	Visibility: —	
Remarks:		

Aerial Foragers	
Species	Tally

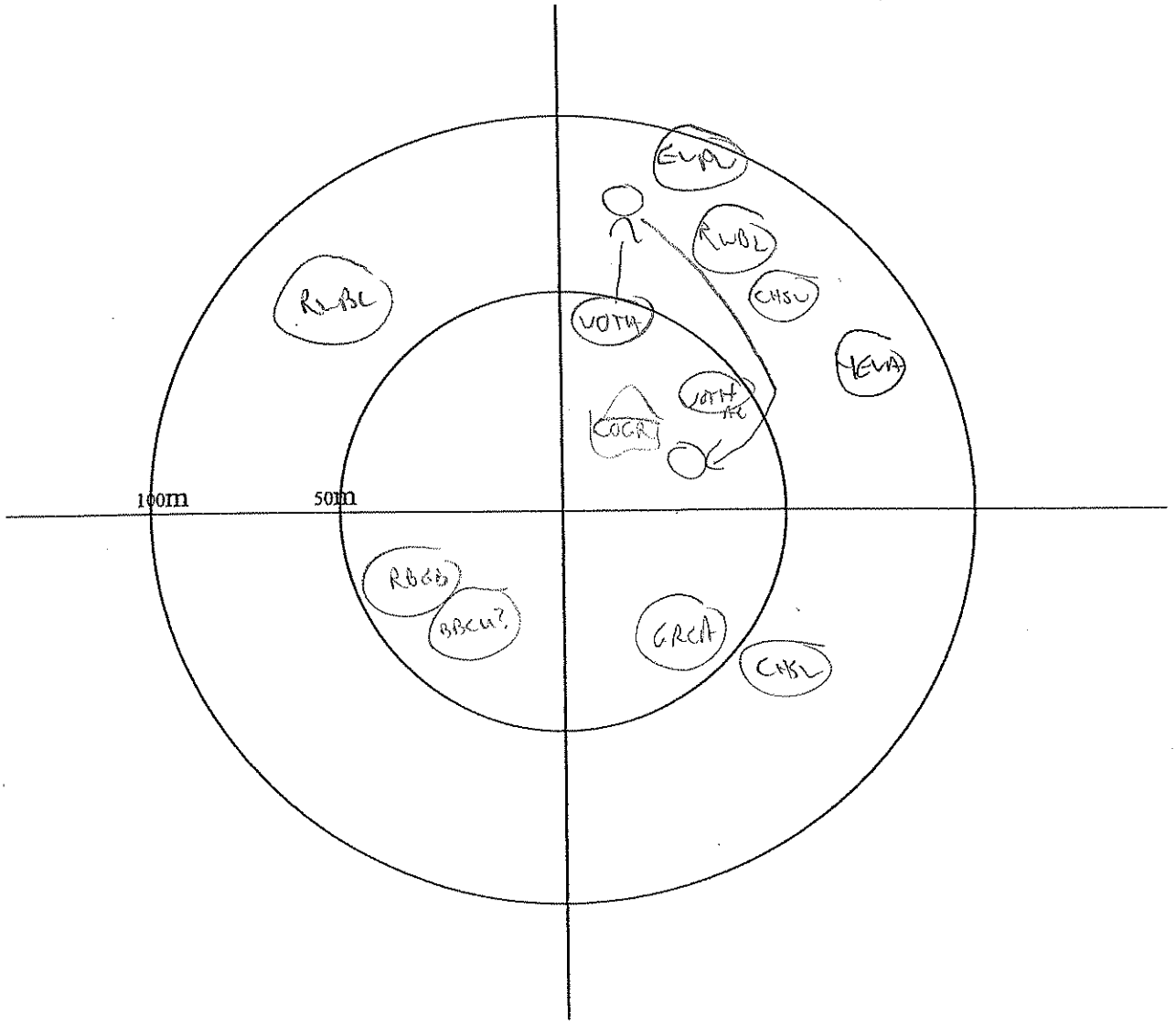
Symbols

- RWBL — Single bird, singing/calling
- RWBL — RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru
GWFU
COGR
YGUA



Point Count Data Form

Observer:	Site:	Date:
Station ID: UAFPC 02	Visit #:	Start Time (HH:MM): 0715?
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C): 21
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

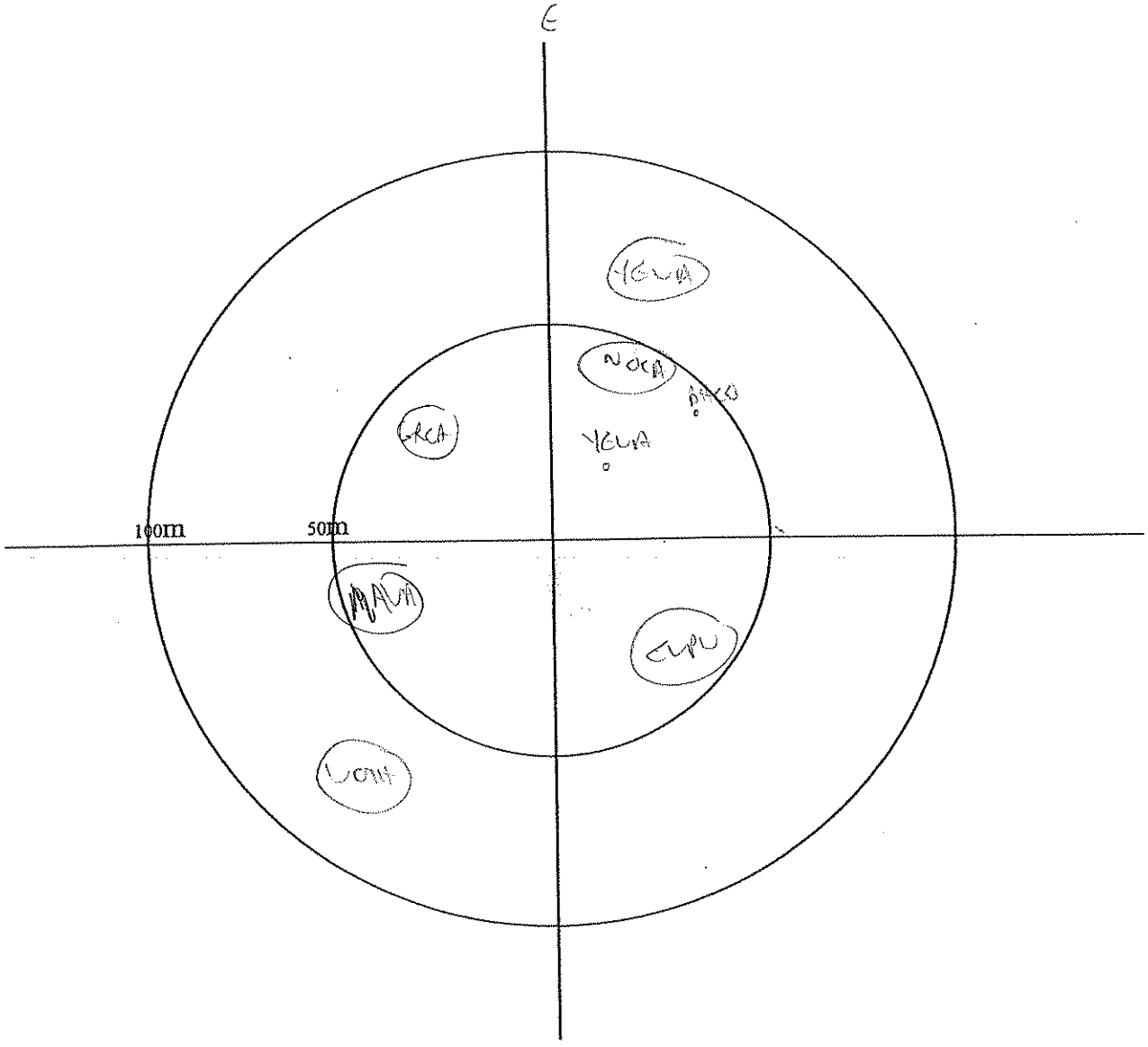
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WA BS

Outside/Flythru
VOTH
RWBL
AMCR
NOCA - FO



Point Count Data Form

Observer: SKM	Site: GESNER	Date: June 25/08
Station ID: U2PPC	Visit #: SUM 2	Start Time (HH:MM): 08:55
Beaufort Wind Scale: 0-1	Cloud Cover (%): 0	Temperature (°C): 24
Precipitation: —	Visibility: —	
Remarks:		

Aerial Foragers	
Species	Tally

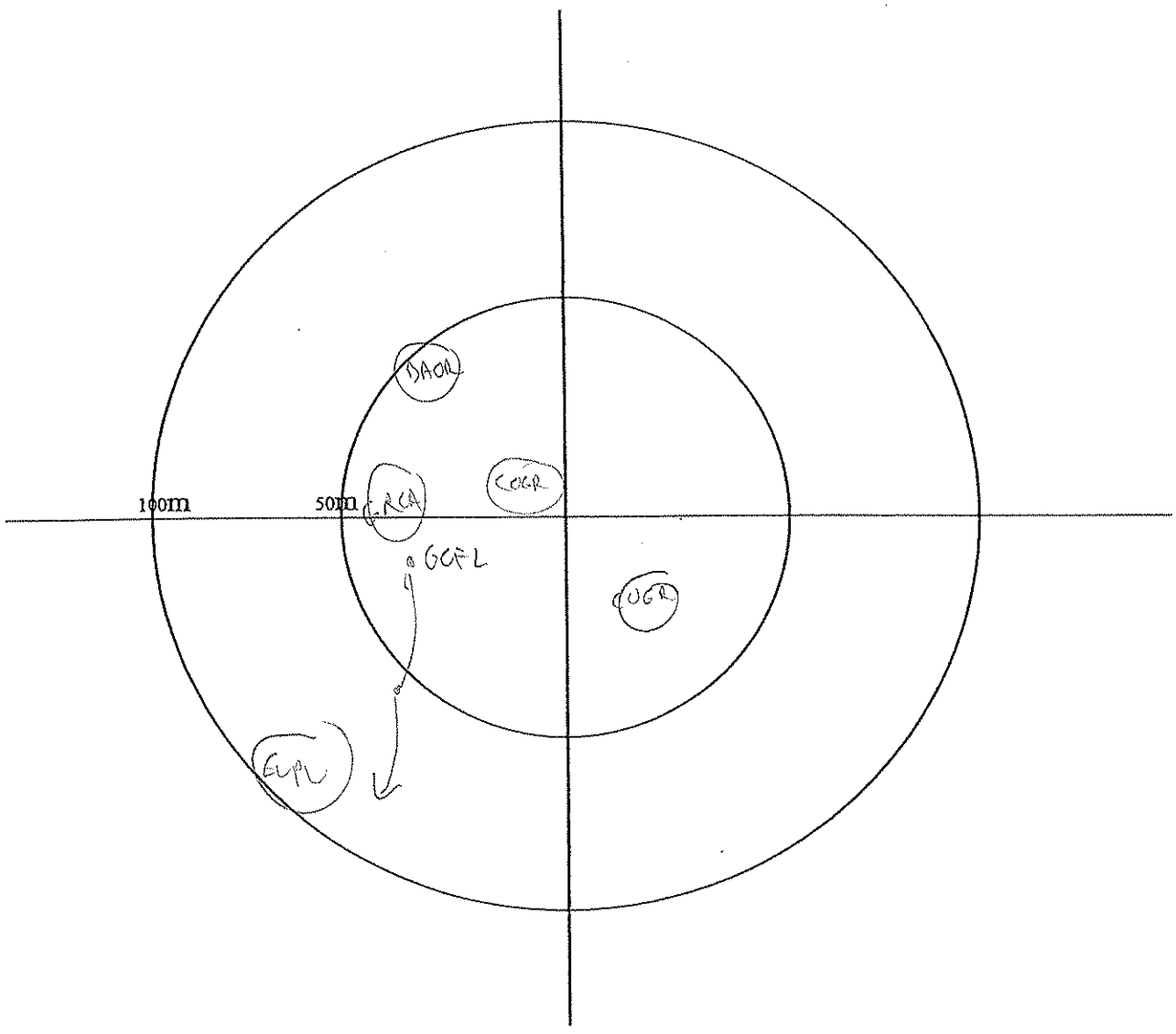
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs, but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru
AMGO
REVI
AMCR II
Hawk
FMOU



Point Count Data Form

Observer:	Site:	Date:
Station ID:	Visit #:	Start Time (HH:MM):
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

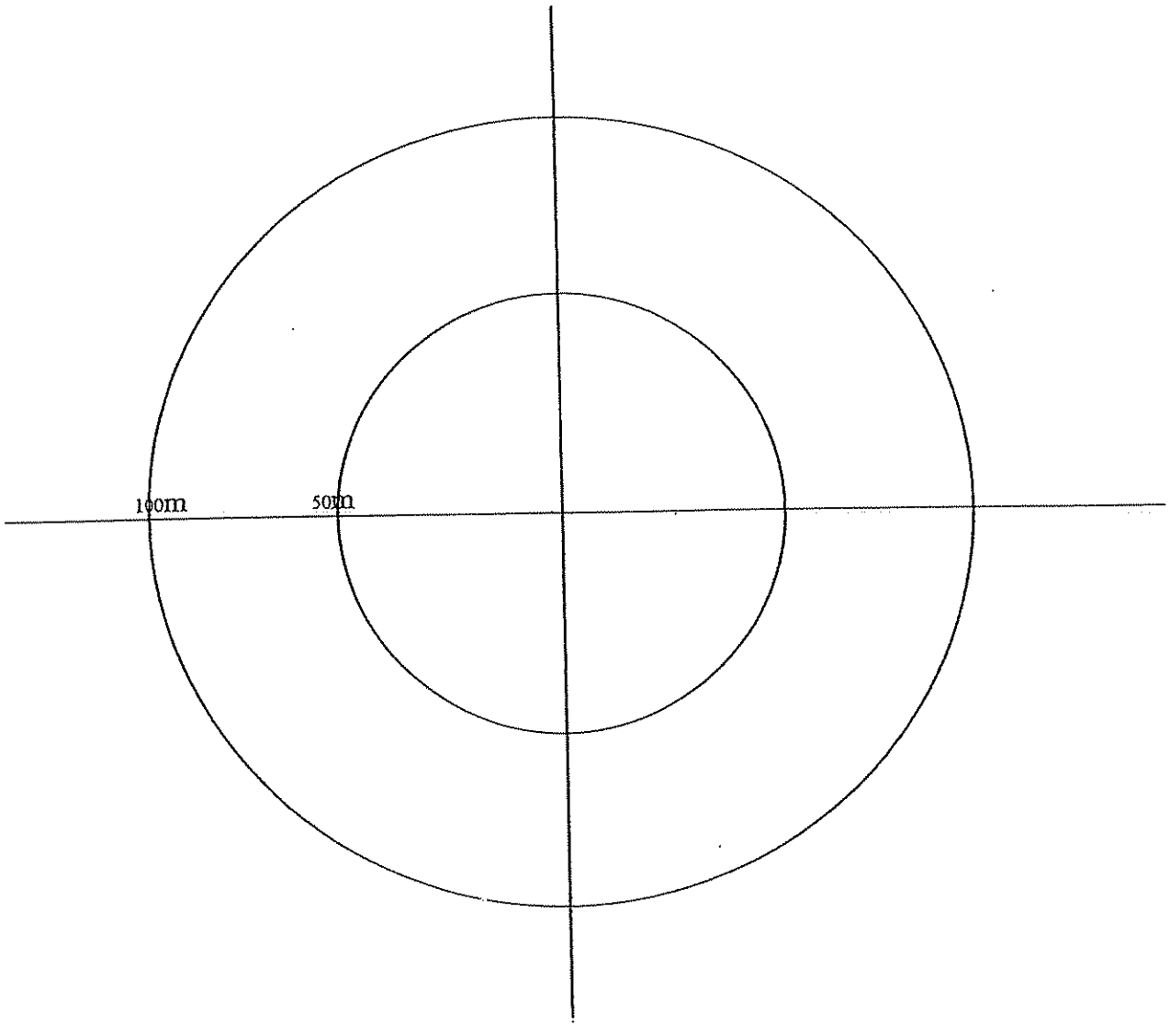
1 - BTH

2 - Close to TH

3 - V BS

4 - WABS

Outside/Flythru



Point Count Data Form

Observer: SKM	Site: CGS	Date: June 24
Station ID: V3 RPC 01	Visit #: SUM 2	Start Time (HH:MM): 08.50
Beaufort Wind Scale: 1	Cloud Cover (%): 0	Temperature (°C): 16
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL + RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

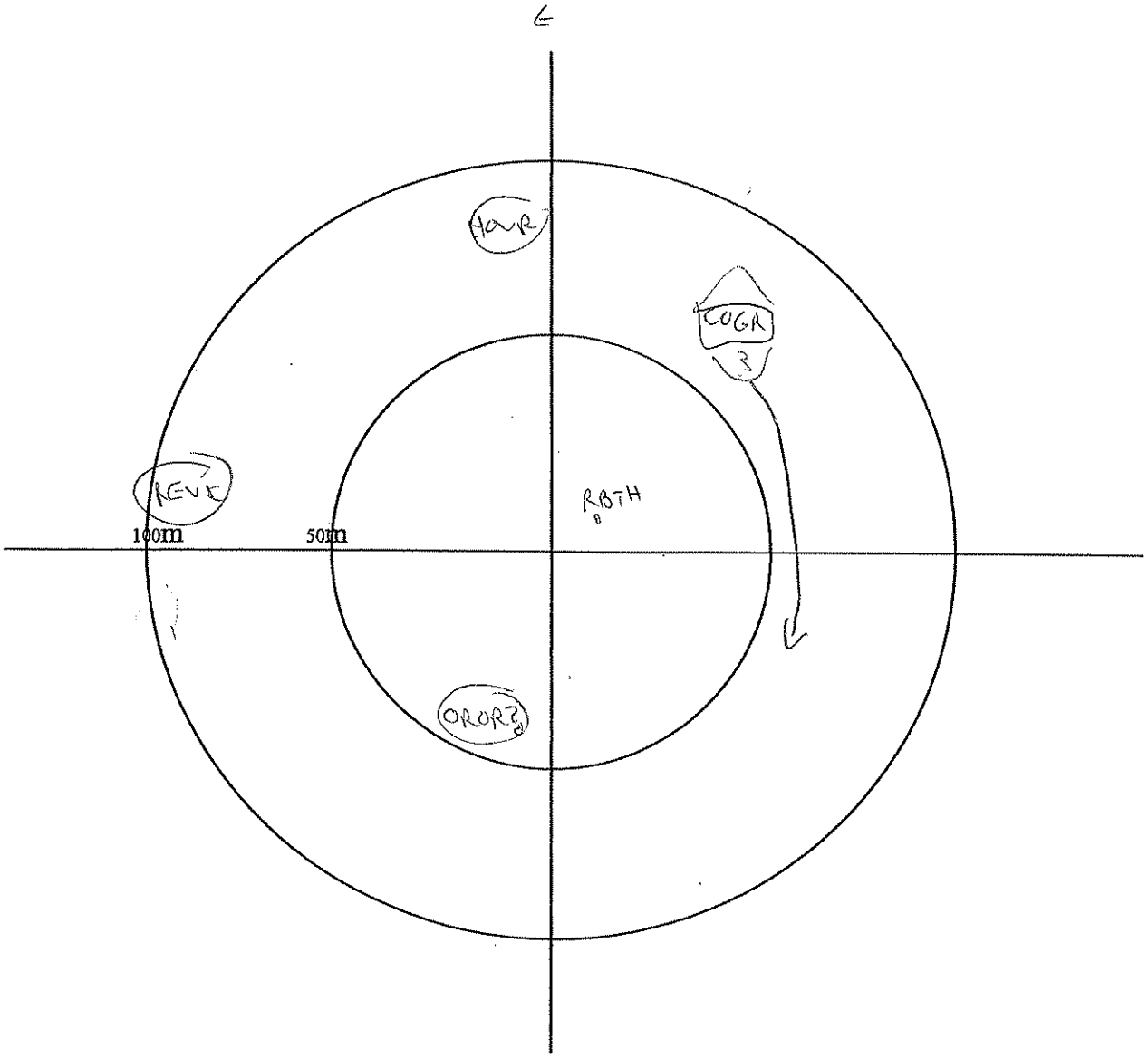
1 - BTH

2 - close to TH

3 - U BS

4 - WA BS

Outside/Flythru
WOTH
HOWR 11
GWU
YEVA
RBWO 11



Point Count Data Form

Observer:	Site:	Date:
Station ID: U3PRC02	Visit #:	Start Time (HH:MM): 09:29
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

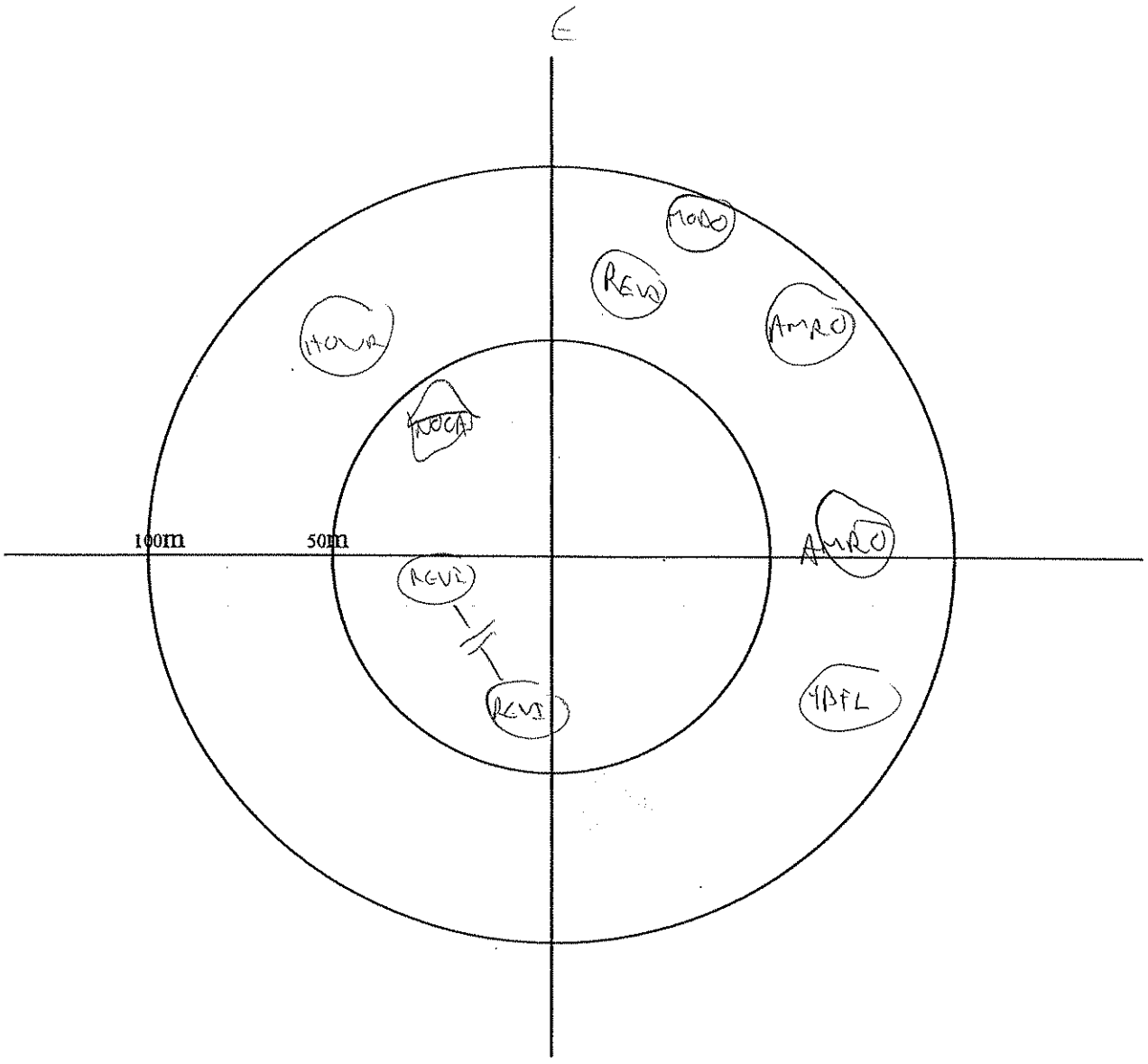
1- BTH

2- Close to TH

3- U BS

4- WABS

Outside/Flythru



Migration Monitoring

PROJECT SITE: GENEGR

Date: June 25/08

UTM: —

Wind Direction SW

Station Number VI01

Air Temp. 26

Wind Speed 3-4

Time 12:34

Precipitation —

Barometric Pressure

Observers SKM

Cloud Cover (%) 60 ; becoming overcast ; 80% @ 12:51 ; 100% @ 13:05 40% @ 13:20

Elevation —

Visibility clear

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
12:38	TUVU	1	soaring WNW; settling over woodlot to NE	B-A	200-500	NW
12:40	HOLA	2	F.O.	B	0-50	E
12:43	TRES	1	Foraging over field	B	100-200	NW
"	OTSP	1	Calling from hedgerows around houses	A	100-200	SSE
12:44	TUVU	1	soaring over woodlot	B	500-1000	N
12:45	TUVU	1	soaring N	B	0-50	OH
12:47	MOOO	2	flying	A	0-50	E
12:48	BRNS	1	Foraging over field	A	0-50	E
12:49	TUVU	3	over woodlot	B>C	300-1000	NW
12:52	~~HOLA~~ PUMA	1	~~F.O.~~ flying S; foraging	B	50-100	N
12:53	TUVU	1	soaring	C	200-500	NNE
12:55	AMRO	4	perched on pole	A	0-50	N
12:58	TUVU	2	still over woodlot; some aspiring	B	200-500	NE
13:00	RTHA	1	soaring over woodlot			
13:04	REVI	1	calling	A	50-1000	W
13:10	HOLA	1	F.O.	B	0-50	S
13:13	HOLA	1	"	B	50-100	NW
13:18	AMRO	1	singing in hedgerow	A	50-100	SSW
13:19	HOLA	2	in field	A	0-50	W
13:21	AMRO	1	CF	A	100-200	SE
"	BHCO	1	perched on wire	A	0-50	N
13:25	HOLA	2	A. on road	A	50-100	N
"	SVSP	1	perched on wire	A	50-100	N

Height Zones: A=Within Blade Sphere, B=Close to Blade Sphere, C= Well Below Blade Sphere, D=Well Above Blade Sphere

13:32	TUVU	1	soaring over woods	B	1000	SE
13:31	BRNS	1	foraging over field; calling	A	50-100	E

Migration Monitoring **PROJECT SITE:** Gesner , p. 2

Date: June 25/08 Station Number VIC01 Time 13:33

Observers 5km Any Weather Changes? 100% overcast, appears as if rain on horizon

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
13:38	AMCR	1	Flying NE	B	50-100	S
13:39	NOCA	1	calling from hedgerow	A	100-200	W
13:39	SOSP	1	"	"	"	"
"	BARS	2	foraging over field	A	0-50	N
13:40	HOLA	1	F.O.	B	50-100	E
13:40	KILL	1	calling	A	0-50	W
13:43	THRA	1	soaring SE	B	0-50	OH
13:45	HOLA	1	F.O. ~4min.	B	50-100	NNE
13:54	EUST + other BLBL	~10-20	moving in field	A	all dir.	0-500
13:56	v. light rain					
14:05	KILL	1	Flying over field	A	50-100	N
14:09	BARS	1	foraging over field	?	0-50	E
14:12	NOCA	1	F.O. ~2min.	B	0-50	OH
14:14	HOLA	1	F.O.	A	50-100	E
14:15	HOLA	2	both F.O. again	B	"	"

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: Gesner

Date: June 25/09 | UTM: — | Wind Direction SW

Station Number N202 | Air Temp. 28 | Wind Speed 3

Time 10:30 | Precipitation — | Barometric Pressure

Observers Skm | Cloud Cover (%) 5

Elevation — | Visibility clear

Note: Blackbird ((RWBL, COGR) regularly noted moving among st fields + shrubs

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
10.35	RTHA	1	soaring	D	>1000	E
	170cm	1	F.O	B	0-50	N
	11	1	" : N5min	B	50-100	S
	Mode	2	perched on wire	A	50-100	W
10:48	TUVU	2	soaring, 1 still soaring @ 10:49	A → C	>1000	S
10:50	TUVU	2	soaring over woodlot @ 10:54	B → C	500-1000	W
			then 1 flew E OH @ 10:56			
10:51	TUVU	1	soaring SW	D	>1000	NW
10:53	GUSY	2	flying E	A	0-50	N
"	AMRO	4	flying W	A	"	OH
10:55	HOFI	1	flying W	A	0-50	N
10:58	TRES	1	foraging over field	A	0-50	OH
11:00	TUVU	1	soaring	B	500-600	NW
11:04	TUVU	1	soaring E	B	>1000	NW
11:05	AMRO	1	flying N	A	50-100	W
11:07	BHCO	1	perched	A	0-50	E
"	TUVU	1	soaring + circling, then moved W	A → B	200-500	N
"	"	1	soaring E, then back W	B	0-50	OH
11:11	TRES	1	foraging over field	A	0-50	NW
11:21	TUVU	1	soaring W	B	50-100	W
	HOFI	1	F.O. W 2min.	A	0-50	E
		1	F.O. W 4min.	B	100-200	S
11:23	COGR	1	C.F.	A	0-50	W
11:37	TUVU	1	soaring NW	C	500-600	SW

Height Zones: A=Within Blade Sphere, B=Close to Blade Sphere, C= Well Below Blade Sphere, D=Well Above Blade Sphere

Migration Monitoring **PROJECT SITE:** Gessner , p. 2

Date: June 25 '08 Station Number VI 02 Time 11:28

Observers Skm Any Weather Changes? ~ Temp ~ 24

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
11:28	HOLA	1	F.O. ~2min.	B	50-100	ENE
11:31	BANS	1	Foraging over field	A	0-50	N
11:33	TUVU	1	soaring generally S	B	500-1000	W
11:35	HOLA	2	F.O. Battle	B	100-200	S
11:36	TUVU	1	soaring W	B	100-200	W
11:46	HOLA	1	F.O. ~1min.	B	100-200	SE
"	"	1	F.O. ~3min.	B	0-50	S
"	LEHA	1	calling ; multiple in distance	A	0-50	W
11:52	TUVU	1	soaring	B	200-500	NW
11:54	AMRO	1	CF ; again @ 12:14	A	0-50	W
12:01	TUVU	1	soaring SW	B	200-500	N
12:00	BWKI	2	foraging over field	A	0-50	S
12:03	TUVU	1	roosting over woodlot	B	500-1000	W
12:05	TUVU	1	soaring SW, joining over wetlet	B	0-50	E
"	"	"		B->C	200-500	S
12:10	HOLA	1	F.O. ~1min.	A	0-50	S
12:23	TUVU	2	soaring over woodlot	B	200-500	SW
12:24	HOLA	1	F.O. ~1min.	B	0-50	OH
12:25	"	1	" ~2min.	B	0-50	OH
12:27	"	1	" ~4min.	B	50-100	S
12:28	AMGO	2	flying NW	A	0-50	OH

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: Gesner

Date: June 4 108

UTM: —

Wind Direction NW

Station Number VIC3

Air Temp. 25

Wind Speed 1 - 2

Time 11:10

Precipitation —

Barometric Pressure

Observers Sk

Cloud Cover (%) 10

Elevation —

Visibility clear

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
11:10	NOCA	1	singing in woodlot	A	50-100	S
11:15	Bl Bird	25-30	in field; constant movement ABH in circle & to reach insects	A	100-200	WNW
11:27	TUVU	1	soaring N	B	50-100	W
	"	1	soaring	B→C	0-50	OH
11:31	HOLA	1	F.O.	B	0-50	E
11:34	SVSP	1	perched on wire calling	A	0-50	W
11:35	GRCA	1	singing in shrubs	A	50-100	N
11:37	TUVU	1	soaring over woodlot	B→C	200-500	NW
11:42	WEFL	1	singing	A	50-100	N
11:44	SVSP	3	perched on wire	A	0-50	ENE
11:45	BRNS	1	flying W	A	0-50	S
11:48	HOLA	1	F.O.	B	50-100	S
11:51	WEFL	1	singing	A	50-100	WNW
11:53	TUVU	1	soaring S	B→C	200-300	SW
11:55	"	1	soaring E	B→C	100-200	N
12:01	RTHA	1	soaring gradually S over field, the Emu being attacked calling	B→C	200-300	NE
12:14	RWBL	2	flying SW	B	0-50	OH
12:26	RODT	1	flying E	A	0-50	S
12:28	AMGO	1	flying S	B	50-100	E
12:30	TUVU	5	soaring NE, the kettling = Hawks	A→B→C	100-200	NNW
12:32	MODO	1	singing	A	100-200	W
	BOBO	1		A	100-200	ESE

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring **PROJECT SITE:** Gesner , p. 2

Date: June 24/08 Station Number W03 Time 12:33

Observers SKM Any Weather Changes? 28° Wind 0-1 Cloud ~ 30% @ 13:00

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
12:39	TUVU	5	4 → flew S to woodlot 1 → flew S along hedgerow			
12:43	RTHA	1	soaring N into woodlot & out round	B	100-200	W
"	TUVU	1	soaring SSW	C	500-100	W
12:47	RTHA	2	soaring & rising	B → C	>1000	SSE
12:49	TUVU	1	soaring N	C	>1000	SW SW
11	RTHA	1	airborne over woodlot once more	B → C	200-500	NW
12:53	TUVU	4	gradually rising & moving → rising in same kettle + soaring over field		500-500	NW
13:00	TUVU	3	soaring in kettle	A-B → C A-B	500-1000	N
13:02	RTHA	1	rising	A → B	71000	S
13:03	TUVU	5	fm other groups, joined our vortex	D → C	100-200	NW
13:05	TUVU	5	soaring	B → C	71000	WSW
11	RTHA	1	soaring W	C	0-50	OH

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Point Count Data Form

Observer: SMM	Site: GGSNER	Date: Aug. 20
Station ID: RT1	Visit #: R1	Start Time (HH:MM): 06:11
Beaufort Wind Scale: B3 W	Cloud Cover (%): 0	Temperature (°C): 11
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

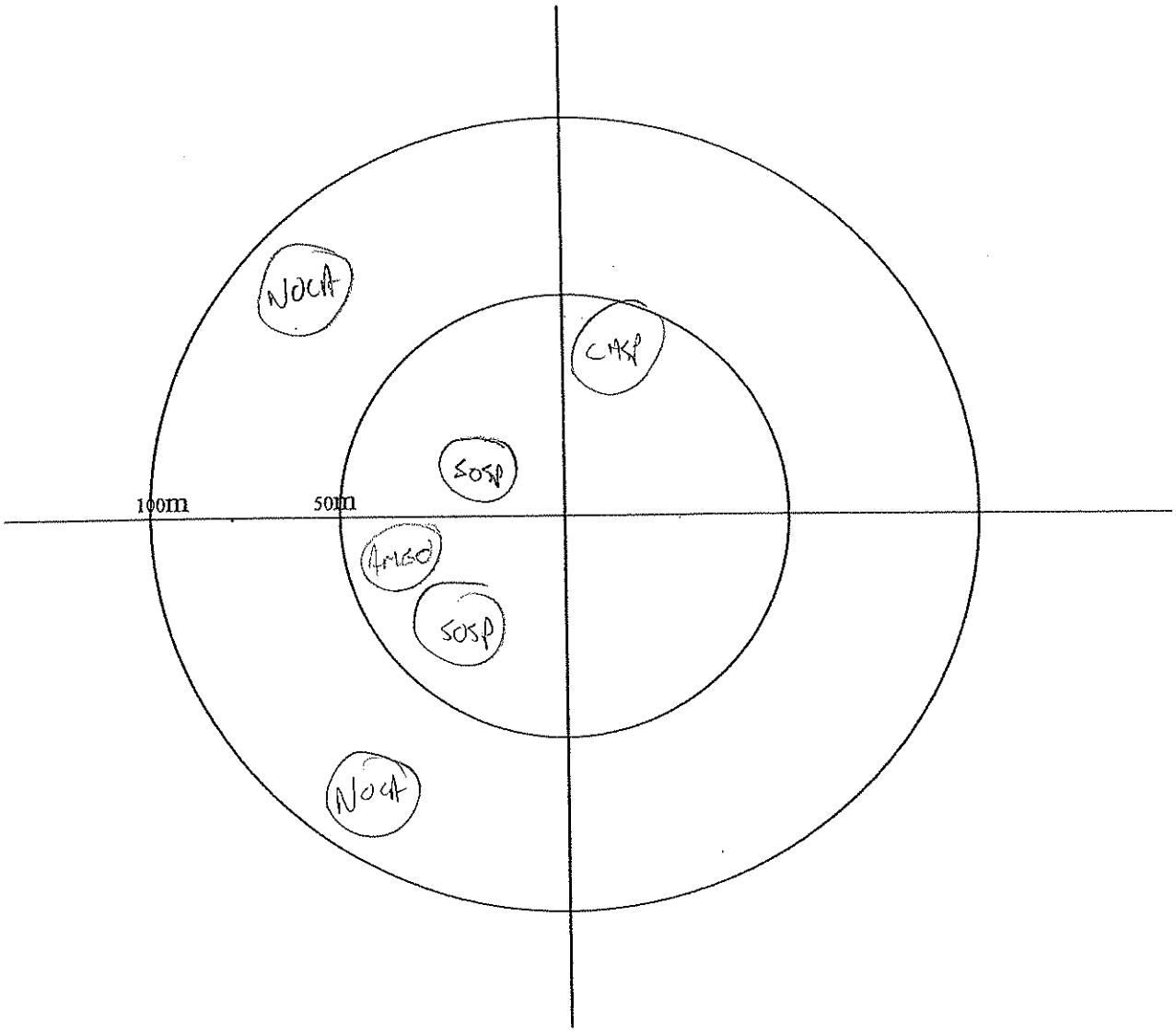
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WABS

Outside/Flythru
AMCR 11
NOCA



Point Count Data Form

Observer:	Site:	Date:
Station ID: FF6	Visit #:	Start Time (HH:MM): 06:25
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

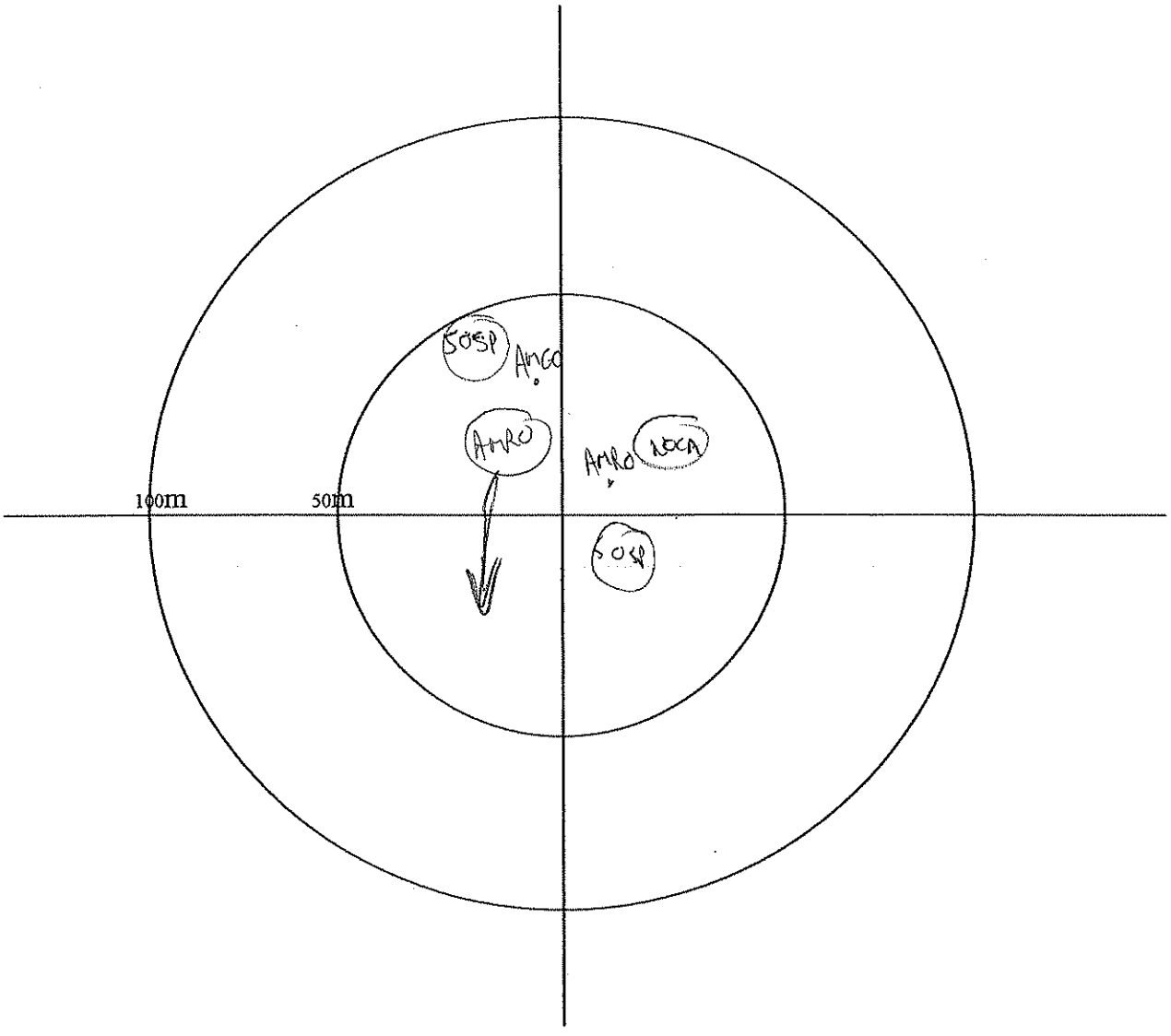
Symbols

- SWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs, but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - W BS
4 - WABS

Outside/Flythru
AMGO III



Point Count Data Form

Observer: BJM	Site: GESNER	Date: Aug 2018
Station ID: FF7	Visit #: F1	Start Time (HH:MM): 06:37
Beaufort Wind Scale: B3N	Cloud Cover (%): 0	Temperature (°C): 10
Precipitation: ~	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally
BWES	1

Symbols

- RWBL — Single bird, singing/calling
- RWBL — RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

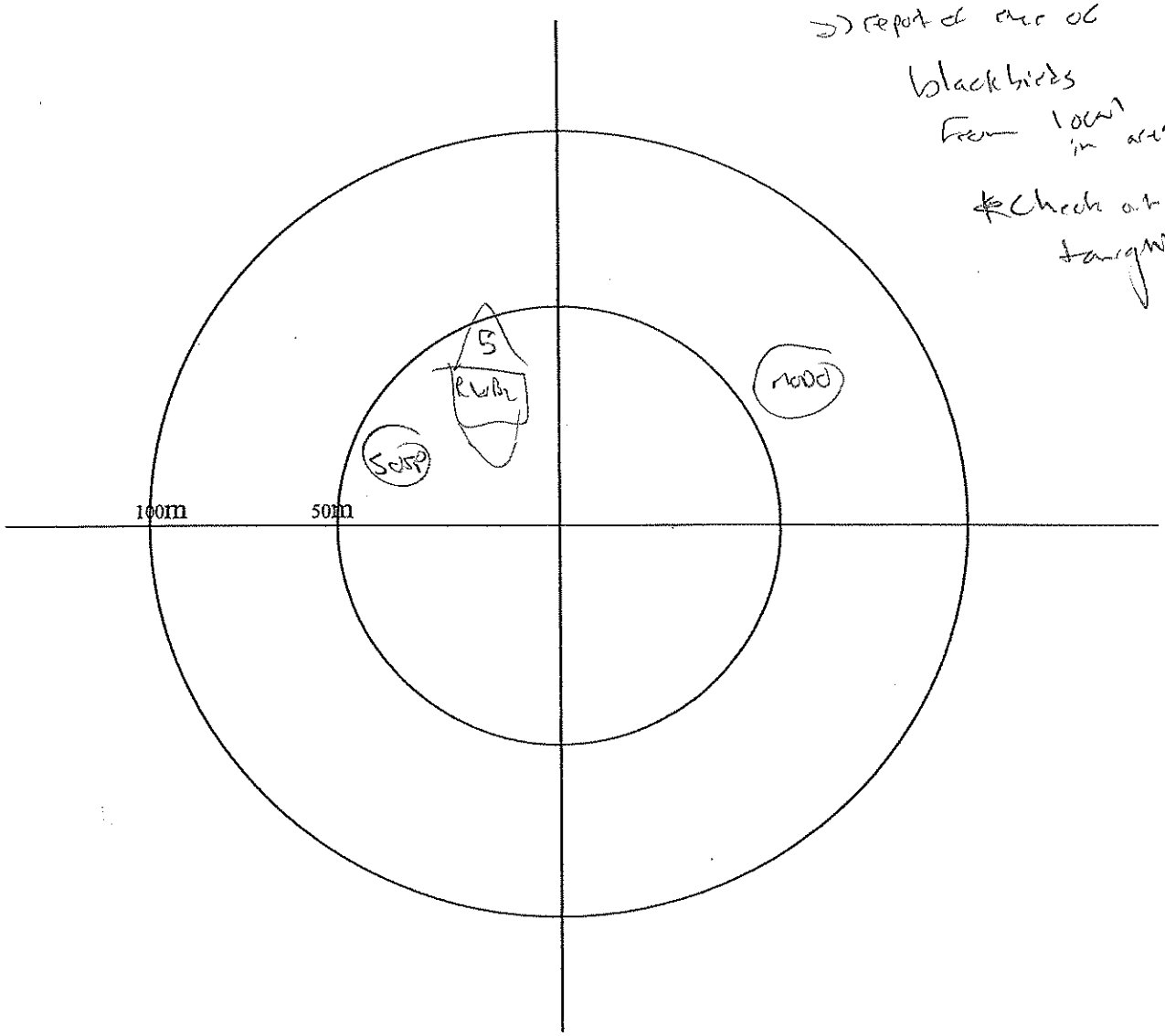
1 - BTH
2 - close to TH
3 - V BS
4 - WABS

Outside/Flythru
BLBE 20, 30, 40 x2
AMCR 11
GRAY 50?
KILL 111

lots coming into circle

=> report of rare OC blackbirds from local in area

*Check out targets



Point Count Data Form

	Site:	Date:
FPG	Visit #:	Start Time (HH:MM): 06:49
nd Scale:	Cloud Cover (%):	Temperature (°C):
ation:	Visibility:	
arks:		

Aerial Foragers	
Species	Tally

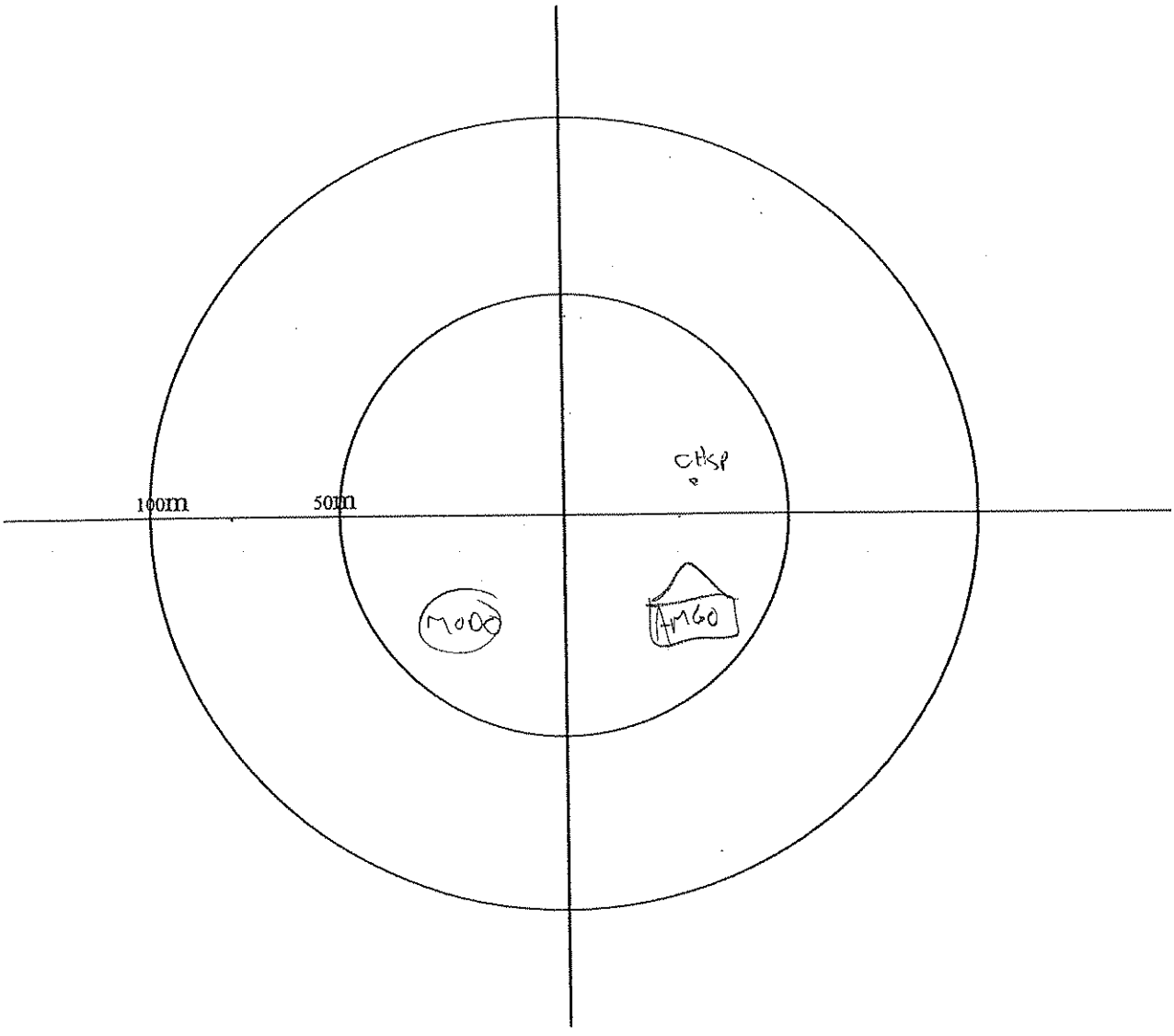
Symbols

- RWBL — Single bird, singing/calling
- RWBL ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1- BTH
2- Close to TH
3- W BS
4- WABS

Outside/Flythru
AMCR III
BLBE 30 +4
RBGR IIII
AMGO III
CUST II
MODO I



Point Count Data Form

Observer: Jhm	Site: GESNER	Date: Aug 20/08
Station ID: HF15.	Visit #: 1	Start Time (HH:MM): 07'53
Beaufort Wind Scale: B1 N	Cloud Cover (%): 0	Temperature (°C): 12
Precipitation: —	Visibility: clear	
Remarks:		

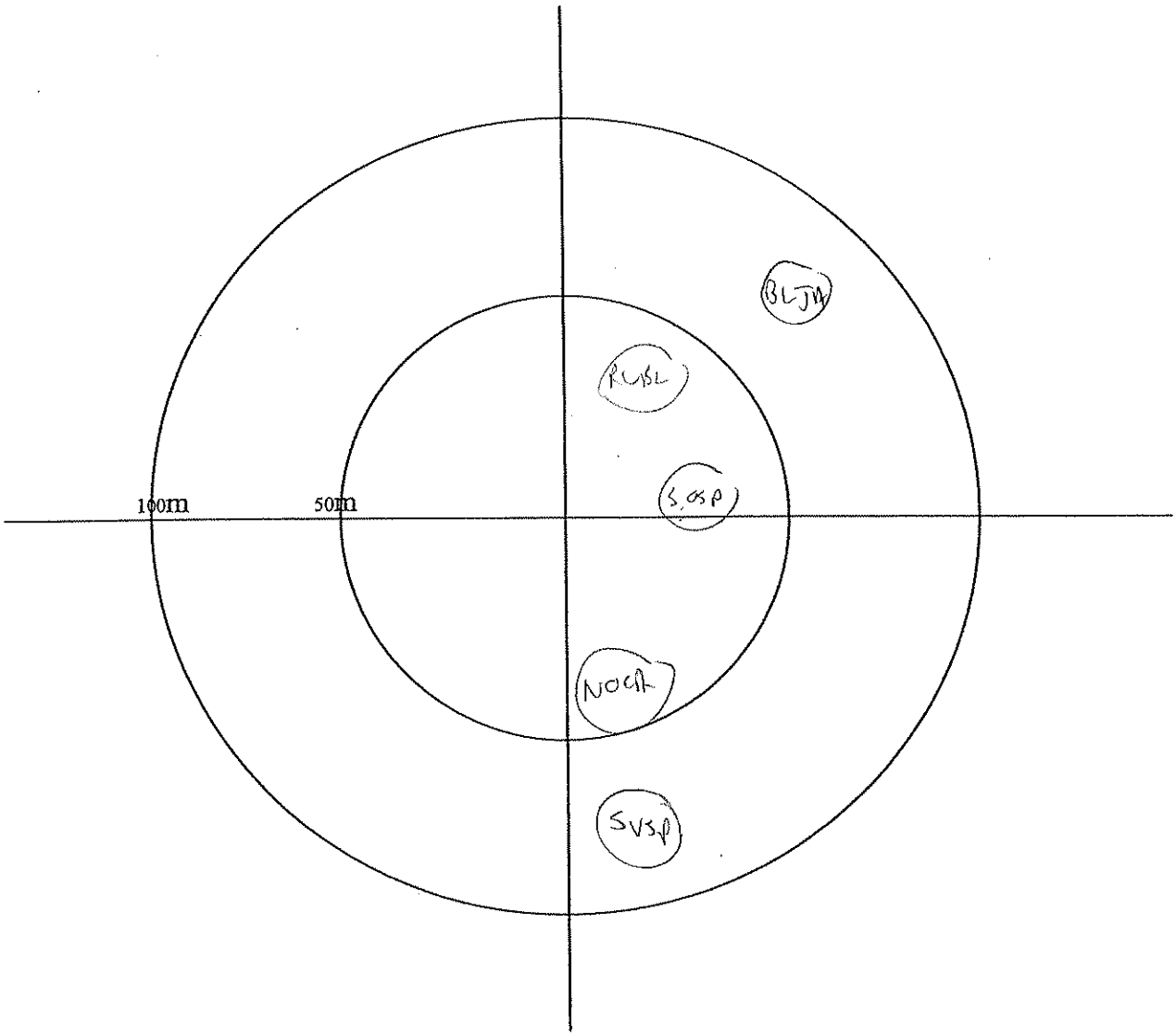
Aerial Foragers	
Species	Tally

Symbols

- RWBL — Single bird, singing/calling
- RWBL — RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height
1- BTH
2- close to TH
3- V BS
4- WABS

Outside/Flythru
AMCR
MGDO
NOFL
EUST IIII



Point Count Data Form

Observer:	Site:	Date:
Station ID:	Visit #:	Start Time (HH:MM):
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

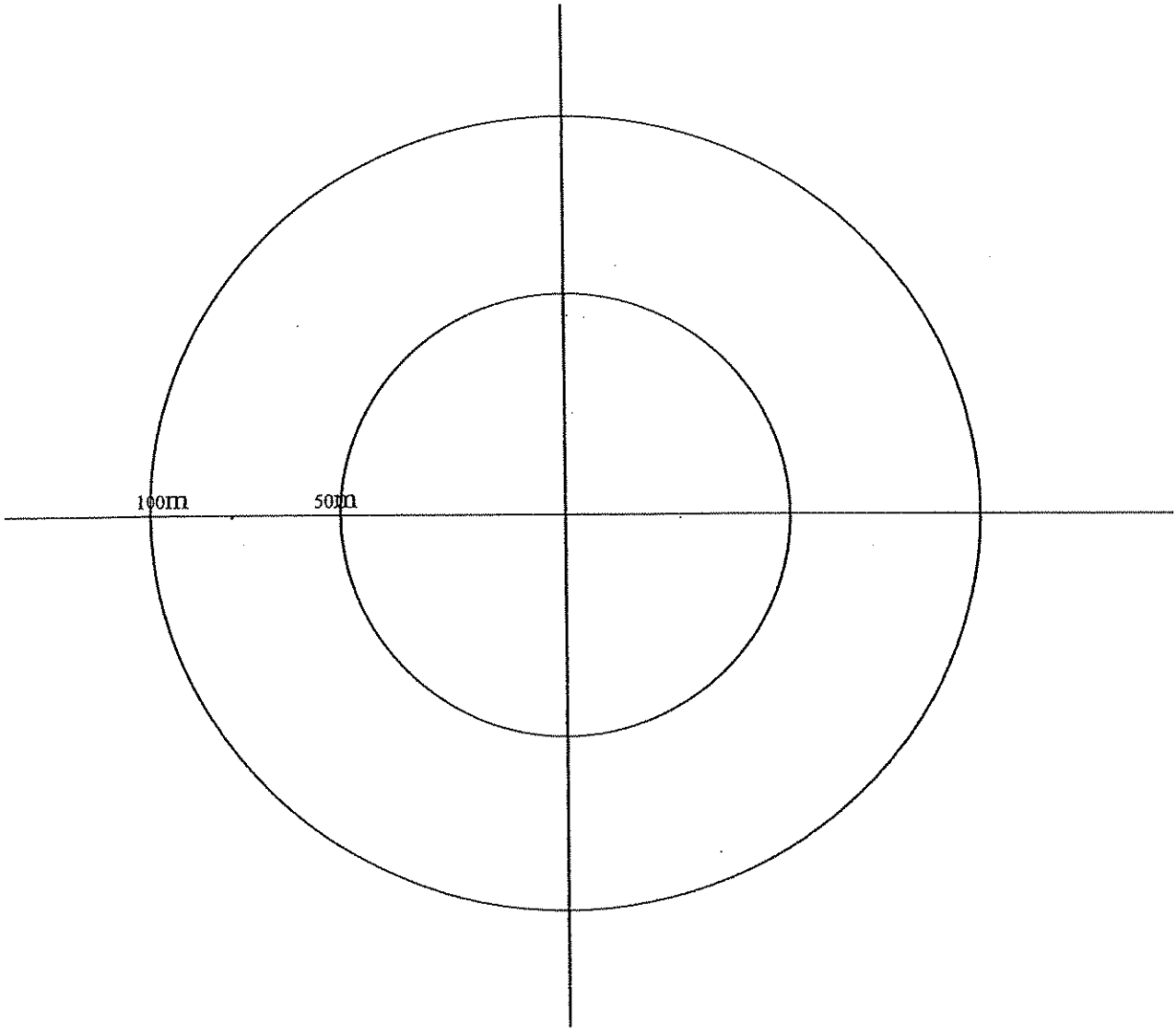
1 - BTH

2 - Close to TH

3 - U BS

4 - WA BS

Outside/Flythru



Point Count Data Form

Observer: Skm	Site: Gesner	Date: Aug. 20 08
Station ID: FF12	Visit #: F1	Start Time (HH:MM): 07:17
Beaufort Wind Scale: B2N	Cloud Cover (%): 0	Temperature (°C): 10
Precipitation: clear	Visibility: clear	
Remarks: site is in middle of corn fields now		

Aerial Foragers	
Species	Tally

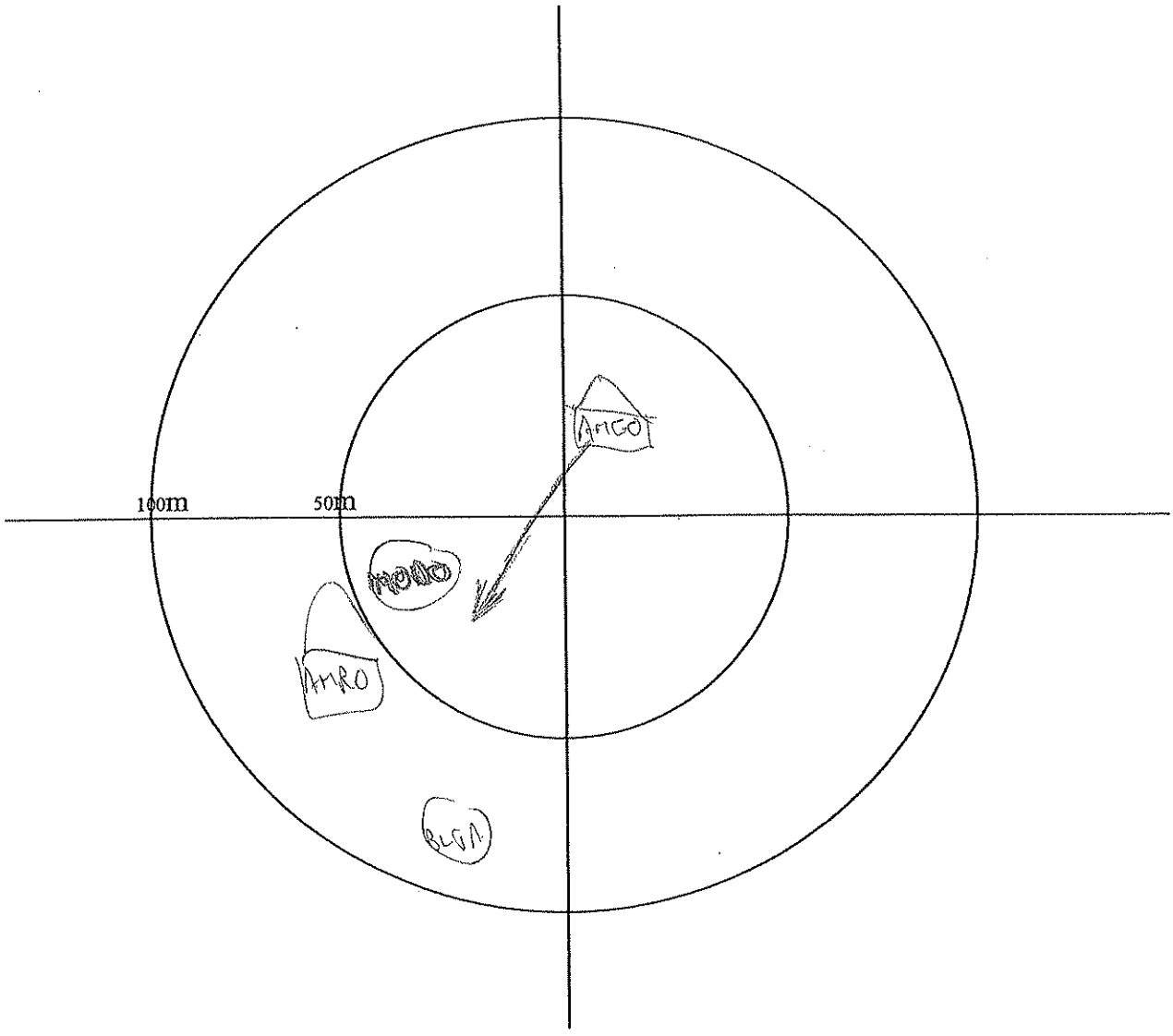
Symbols

- (WBL) Single bird, singing/calling
- (RWBL)–(RWBL) Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - W BS
4 - WABS

Outside/Flythru
AMCR
BLBL 15
RBGU
AMGO III
MODO 1



Point Count Data Form

Observer:	Site:	Date:
Station ID: FP17	Visit #:	Start Time (HH:MM): 0735
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally
BRNS	1 (+ calling MERL)

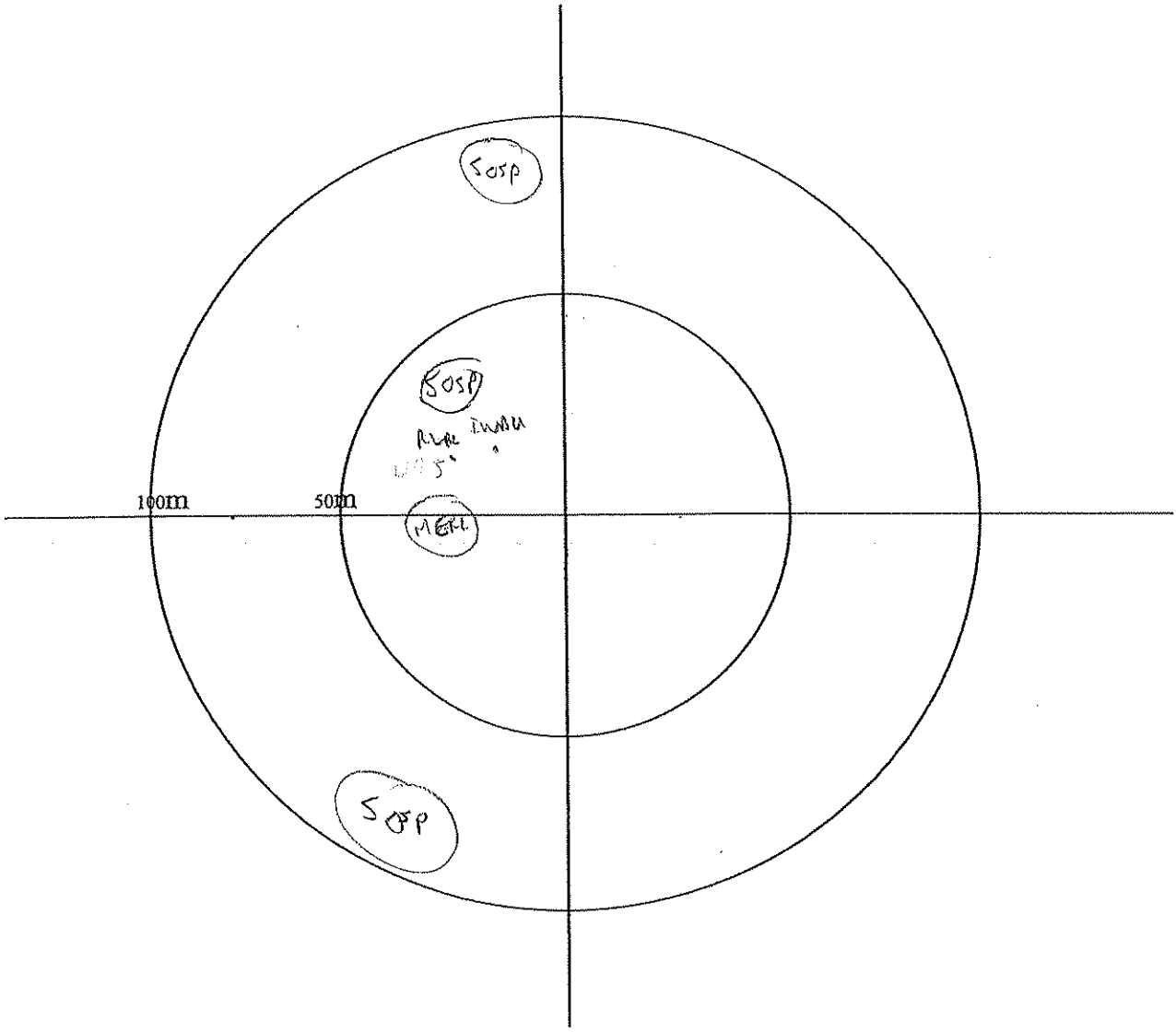
Symbols

- RWBL — Single bird, singing/calling
- RWBL — RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - U BS
4 - WABS

Outside/Flythru



Migration Monitoring

PROJECT SITE: GESNER

Date: Aug. 21/05

UTM:

Wind Direction: R 4-5 ↓

Station Number: M1

Air Temp.: 26

Wind Speed: 50 → variable

Time: 14:00 - 15:00

Precipitation: —

Barometric Pressure:

Observers: Skm

Cloud Cover (%): 5

Elevation: —

Visibility: clear

Note: Skm moved to ↑ visibility due to nearby cornfield.

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
14:12	SOSP	1	calling in field	A	0-50	SW
14:22	BRNS	3	foraging over field	A	100-200	WSW
14:33	AGSP	2	calling & bird house	A	100-200	SW
14:33	EUST	20	flying SSE over cornfield	A	0-50	S
14:33	TUVU	1	soaring gradually E	B	>1000	S
14:35	MODO	1	flying N	A	100-200	E
14:38	AMCR	1	flying ENE	A	200-500	N
14:48	TUVU	3	soaring over wetlot	B-C	>1000	SE
15:04	TUVU	16	"	B-C	>1000	ESE
15:15	HOSP	1	foraging in field, then flew to bird house	A	0-50	ENE
15:16	TUVU	1	soaring W	B	>1000	SW

Monarch Passes 1

Height Zones: A=Within Blade Sphere, B=Close to Blade Sphere, C= Well Below Blade Sphere, D=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GESNER , p. 2

Date: Aug. 21/08

Station Number M1

Time 15:16

Observers S/Kw

Any Weather Changes? —

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
15:34	EUST	1	flying W along shrub line	A	200-300	WSW
15:35	AMRO	1	perched on shrubline	A	150-200	N
15:50	TUVU	3	soaring along road	A→B	>1000	SSE
15:51	AMGO	1	flying NW	A	150-200	E
15:51	EUST	20	flying E; away from motorcycle	A	>1000	SSE
15:58	HO SP	1	perched on wire	A	0-30	S
15:59	TUVU	1	Soaring E	B	>1000	SSE

Monarch Passes (cont.) 1

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GEGUER

Date: Aug. 19/08

UTM:

Wind Direction NW S

Station Number 12

Air Temp. 26

Wind Speed E L

Time 16:05 - 18:05

Precipitation —

Barometric Pressure

Observers Skm

Cloud Cover (%) 2

Elevation

Visibility clear

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
16:15	TUVU	2	flying/soaring	A→B	300-500	S
16:18	TUVU	6	soaring in kettle	A→C	500-1000	SE
16:21	RTAH	1	soaring over road bt	B	>1000	SE
	TUVU	1	soaring SE	A	50-100	SW
	COOO	1	perching on pole	A	50-100	E
	AMGO	2	flying SE	A	0-50	S
16:34	ATSA	1	soaring W	B	500-1000	NNE
16:36	TUVU	1	flying SW	B	200-500	W
16:39	TUVU	1	soaring S	A	0-50	W
16:40	TUVUS →	continually obs. to S/SW		all heights		
16:44	BNKS	4	foraging over field	A	50-100	N
16:43	CHSP	1	chipping in CW	A	0-50	S
17:07	TUVU → flk	several	soaring to S			
17:09	NO. SWALLOW	~10	flying	B	300-1000	S
17:11	ROPE	4	FLYING N	A	500-1000	E
17:13	BNKS	1	foraging over field	A	0-50	NW
17:15	MODO	2	flying NE	A	200-500	E
17:18	TUVU	11	near (in) kettle moving N	B→C	100-200	SW
17:26	RBGR	1	flying W	B	500-1000	W
17:36	HOLA	2	chase in CW	A	0-50	N
17:40	BNKS	1	foraging over field	A	0-50	S

Monarch Passes 11 → 2nd got clr BS

Height Zones: A=Within Blade Sphere, B=Close to Blade Sphere, C= Well Below Blade Sphere, D=Well Above Blade Sphere

17:42	AMCR	2	flying NE	A	@50	NW
17:51	TUVU	1	soaring N	B	50-100	W

Migration Monitoring

Date: Aug 29 /08

Station Number BAT02

Time 14:00 - 16:00

Observers SM

Elevation _____

PROJECT SITE: GEISER

UTM: _____

Air Temp. ~25°

Precipitation —

Cloud Cover (%) 5

Visibility Clear

Wind Direction N

Wind Speed 2

Barometric Pressure _____

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
14:15	RBGU	~15	soaring in kettle, moving gradually NW	all	200-500	S
14:30	TUVU	2	flying S	C	500-100	NE
14:45	"	1	soaring N	B	>1000	S
14:50	CAGO	12	flying W	D	>1000	S
14:53	RO	5	flying across site & back to barn	A	200-500	SE
14:57	RBGU	3	soaring in kettle	B	100-200	S
15:03	TUVU	2	soaring E	B	>1000	N
15:12	TUVU	6	kettling	all	>1000	NW
15:16	HOFI	1	CF	A	0-50	N
15:17	BRNS	2	flying over field	A	100-200	NW
15:17	TUVU	1	flying one to join others	B	200-500	NW
15:24	CHSP	1	calling from top of barn	A	0-50	NE
15:24	MODO	3	perched on wire	A	200-500	N
15:28	TUVU	3	new obs. moving S	B-C	>1000	E
15:31	TUVU	1	soaring gradually around area	A-B	0-50	N
15:38	TUVU	3	soaring over roadside	B-C	>1000	S

Height Zones: A=Within Blade Sphere, B=Close to Blade Sphere, C= Well Below Blade Sphere, D=Well Above Blade Sphere

Monarch Passes IIII

Migration Monitoring **PROJECT SITE:** GESNER , p. 2

Date: Aug 19 /08 Station Number BAT 02 Time 15:40

Observers SJM Any Weather Changes? —

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
15:53	AMCO	1	gliding E	A	100-200	N
"	TUVU	1	soaring	B	700	NE
15:53	RUBL	3	flying NW	A	100-200	N
"	TUVU	4	soaring	B - C	500-1000	N
15:59	TUVU	1	soaring over wetlot	A - B	500-1000	S

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Monarch passes (cont.) 1 Tiger Swallowtail butterfly

Point Count Data Form

Observer: Shan.	Site: Gesner	Date: Sept. 4/08
Station ID: FF17	Visit #: F2	Start Time (HH:MM): 06:00
Beaufort Wind Scale: B1 NE	Cloud Cover (%): 100	Temperature (°C): 17
Precipitation:	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

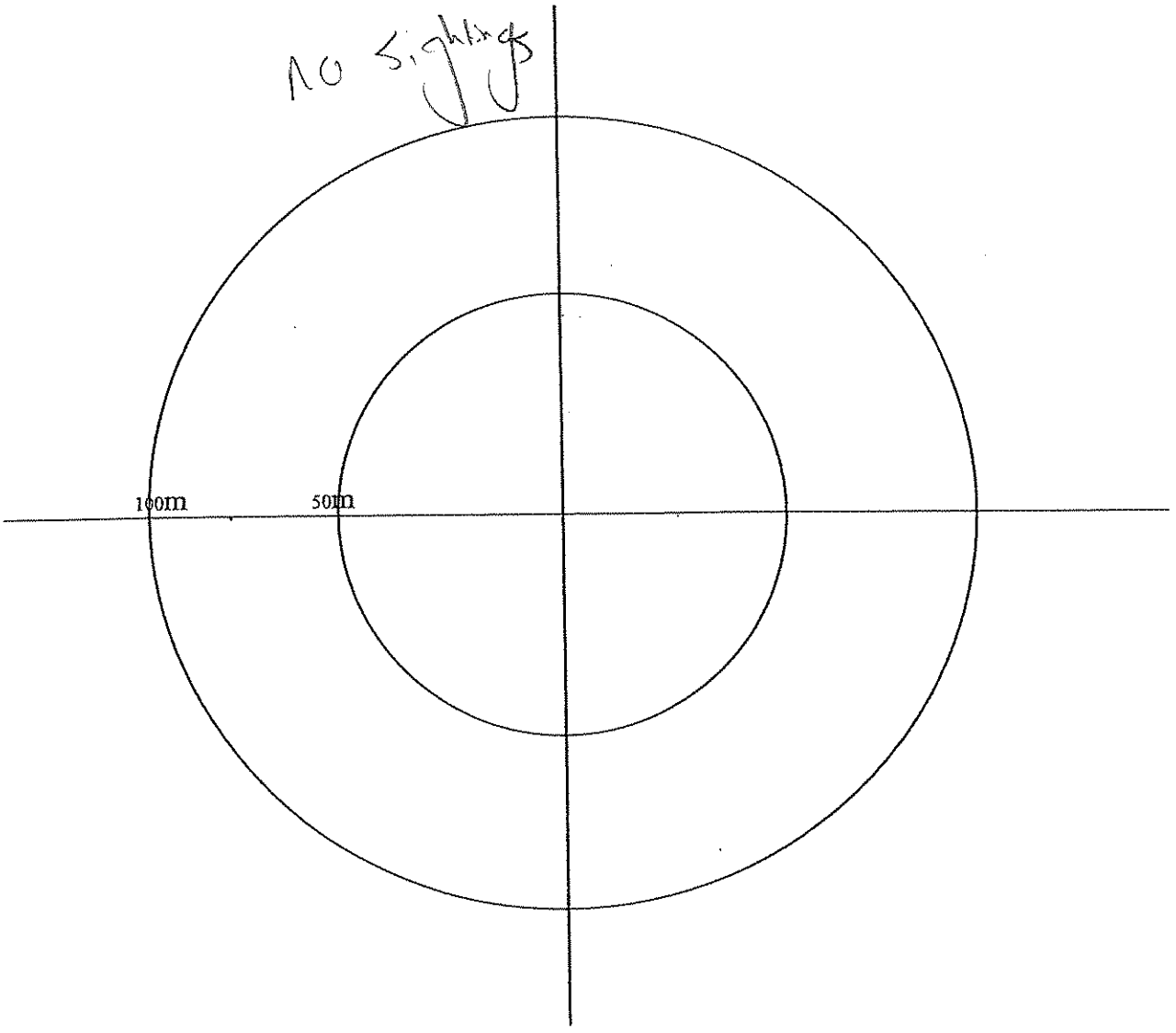
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs. but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WA BS

Outside/Flythru



Point Count Data Form

Observer:	Site:	Date:
Station ID: PF15	Visit #:	Start Time (HH:MM): 06:14
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

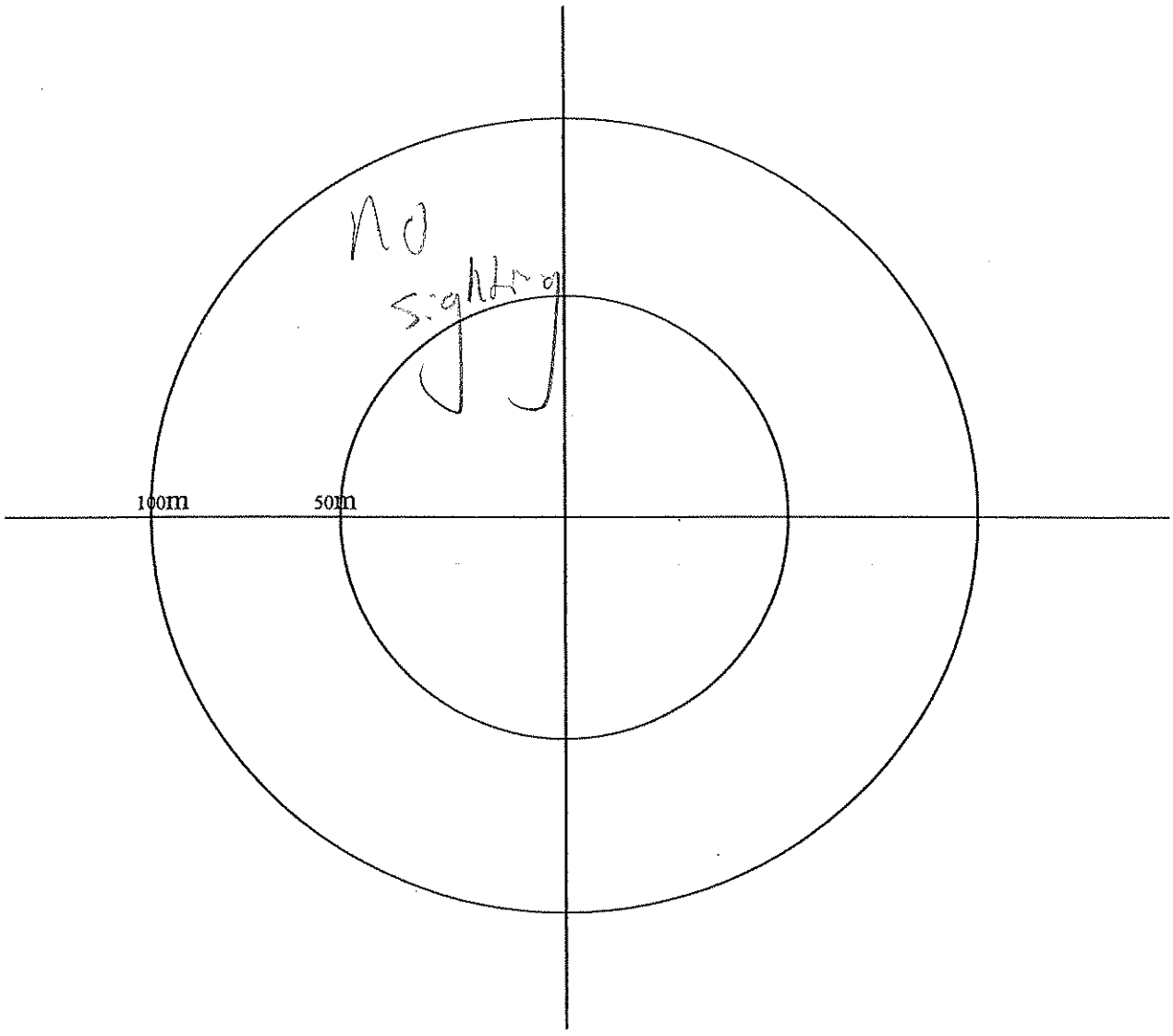
Symbols

- RWBL — Single bird, singing/calling
- RWBL — RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - W BS
4 - WABS

Outside/Flythru



Point Count Data Form

Observer: SWM	Site: Gerner	Date: Sept 4/04
Station ID: FF12	Visit #: P2	Start Time (HH:MM): 0631
Beaufort Wind Scale: B1-2 NW	Cloud Cover (%): 100	Temperature (°C): 17
Precipitation: —	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL + RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

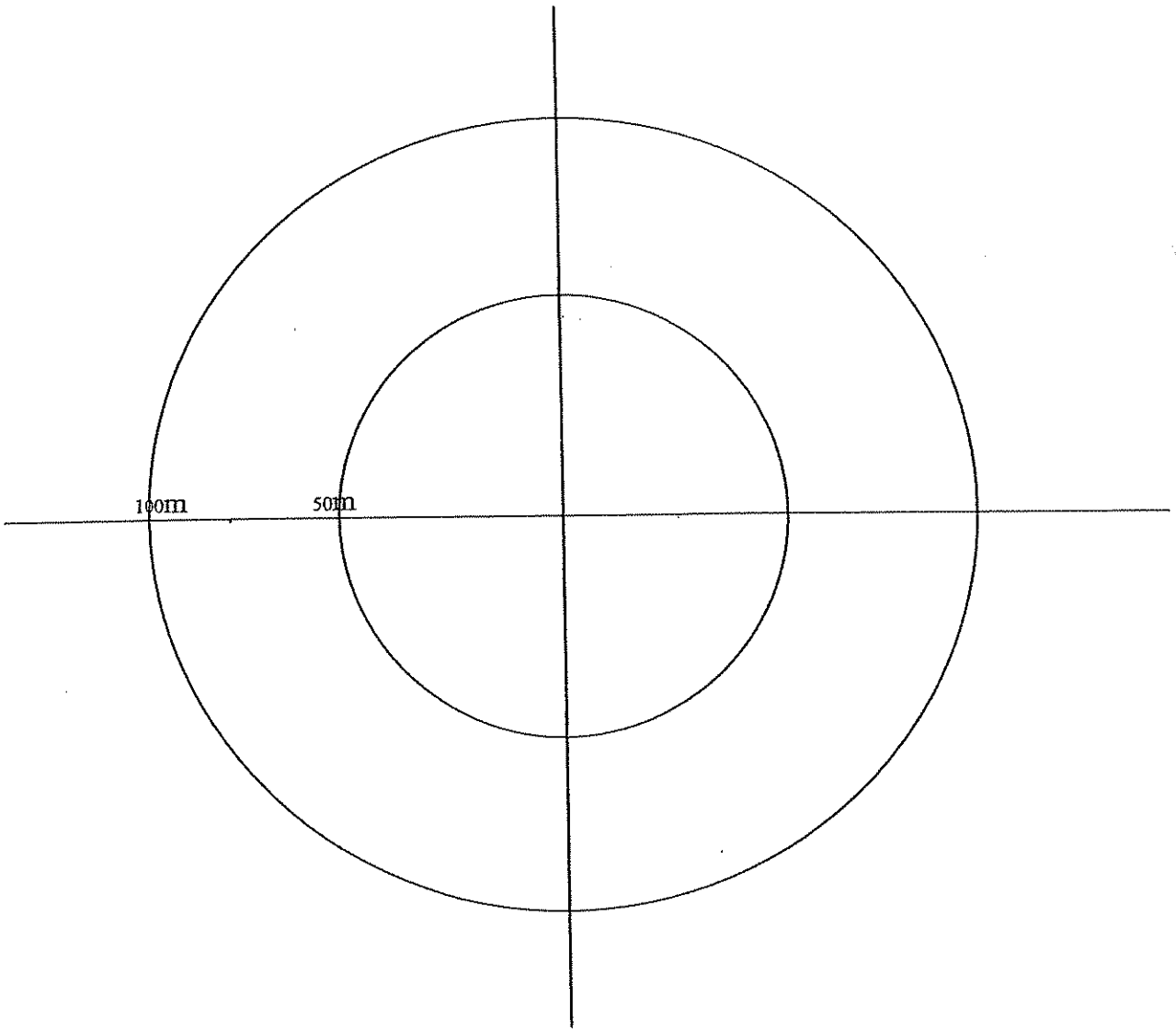
1- BTH

2- Close to TH

3- UBS

4- WABS

Outside/Flythru
noDo



Point Count Data Form

Observer:	Site:	Date:
Station ID: RP01	Visit #:	Start Time (HH:MM): 06:50
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

1 - BTH

2 - Close to TH

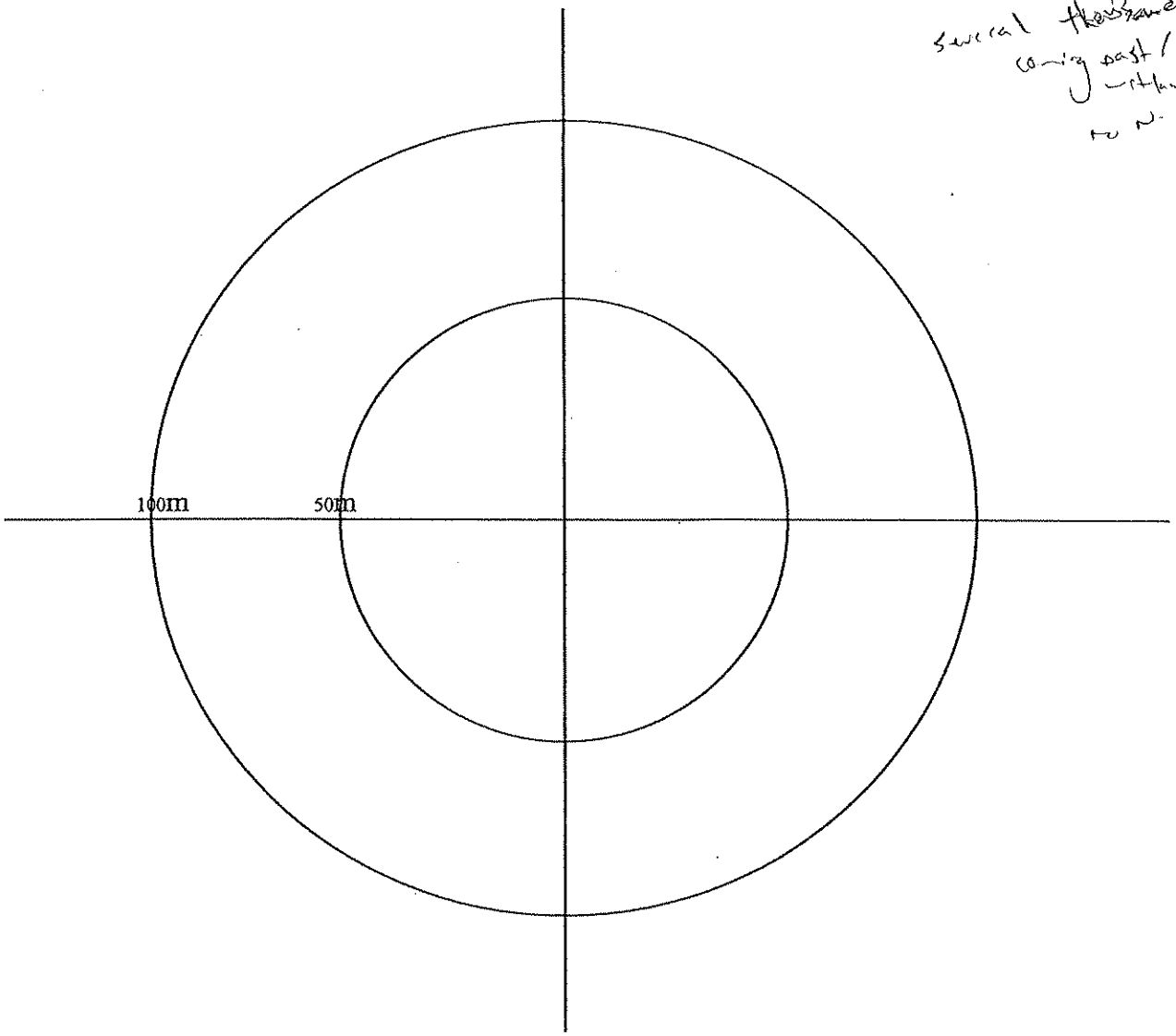
3 - W BS

4 - WABS

Outside/Flythru
AMCR
Blackbirds (100+) → outside staying also

→ river of blackbirds

~~several hundred~~ Possibly several thousand coming past/from within to N.



Point Count Data Form

Observer: Skm	Site: Gesner	Date: Sept. 4/04
Station ID: PP1	Visit #: P 2	Start Time (HH:MM): 07:11
Beaufort Wind Scale: B2 NNW	Cloud Cover (%): 80	Temperature (°C): 18
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

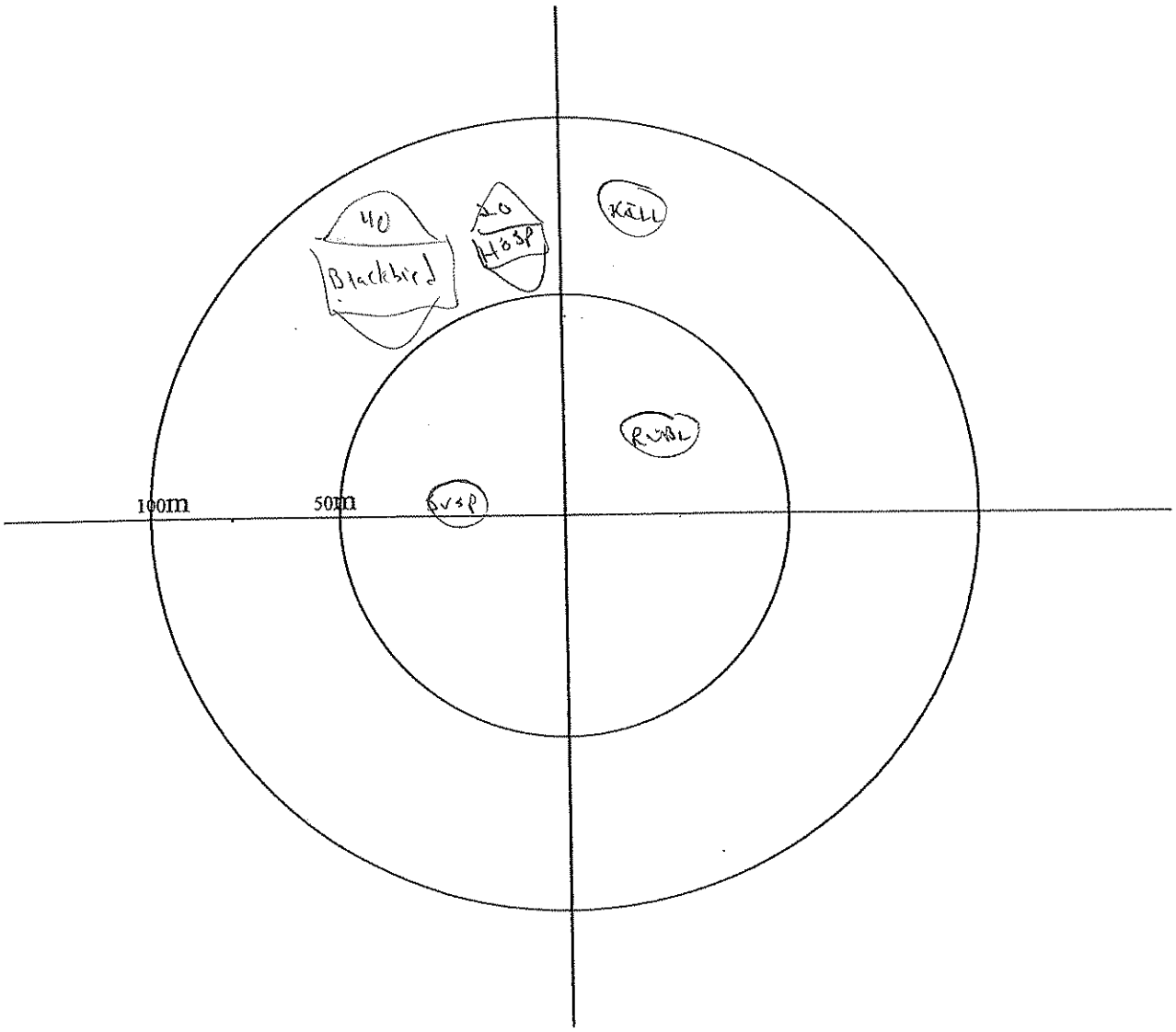
Symbols

- RWBL — Single bird, singing/calling
- RWBL — RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1- BTH
2- close to TH
3- W BS
4- WA BS

Outside/Flythru
ROBO 10
GWST TTHR 11
AMGO
MODO NH
AHLL NH 1



Point Count Data Form

Observer:	Site:	Date:
Station ID: FF5	Visit #:	Start Time (HH:MM): 07:24
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

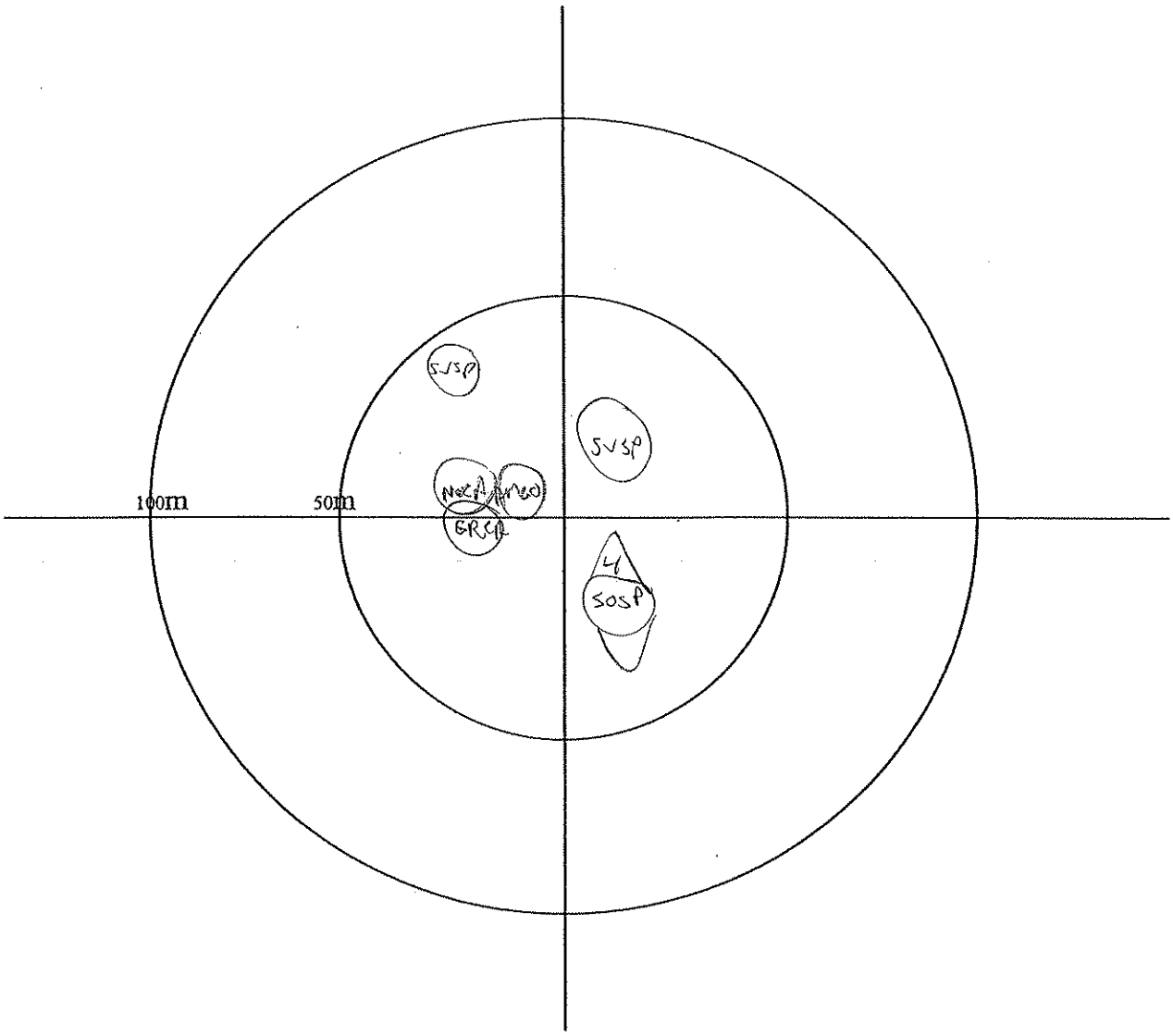
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - U BS
4 - WABS

Outside/Flythru
AMCR IIII
MODO II
AMRO

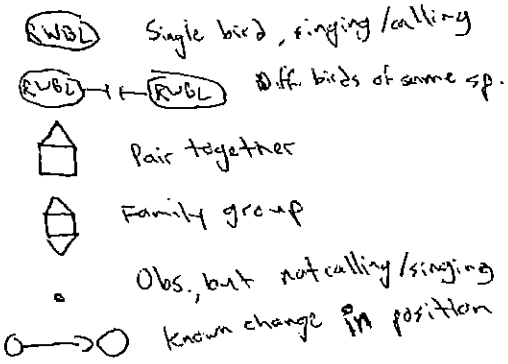


Point Count Data Form

Observer:	Site:	Date:
Station ID:	Visit #:	Start Time (HH:MM):
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

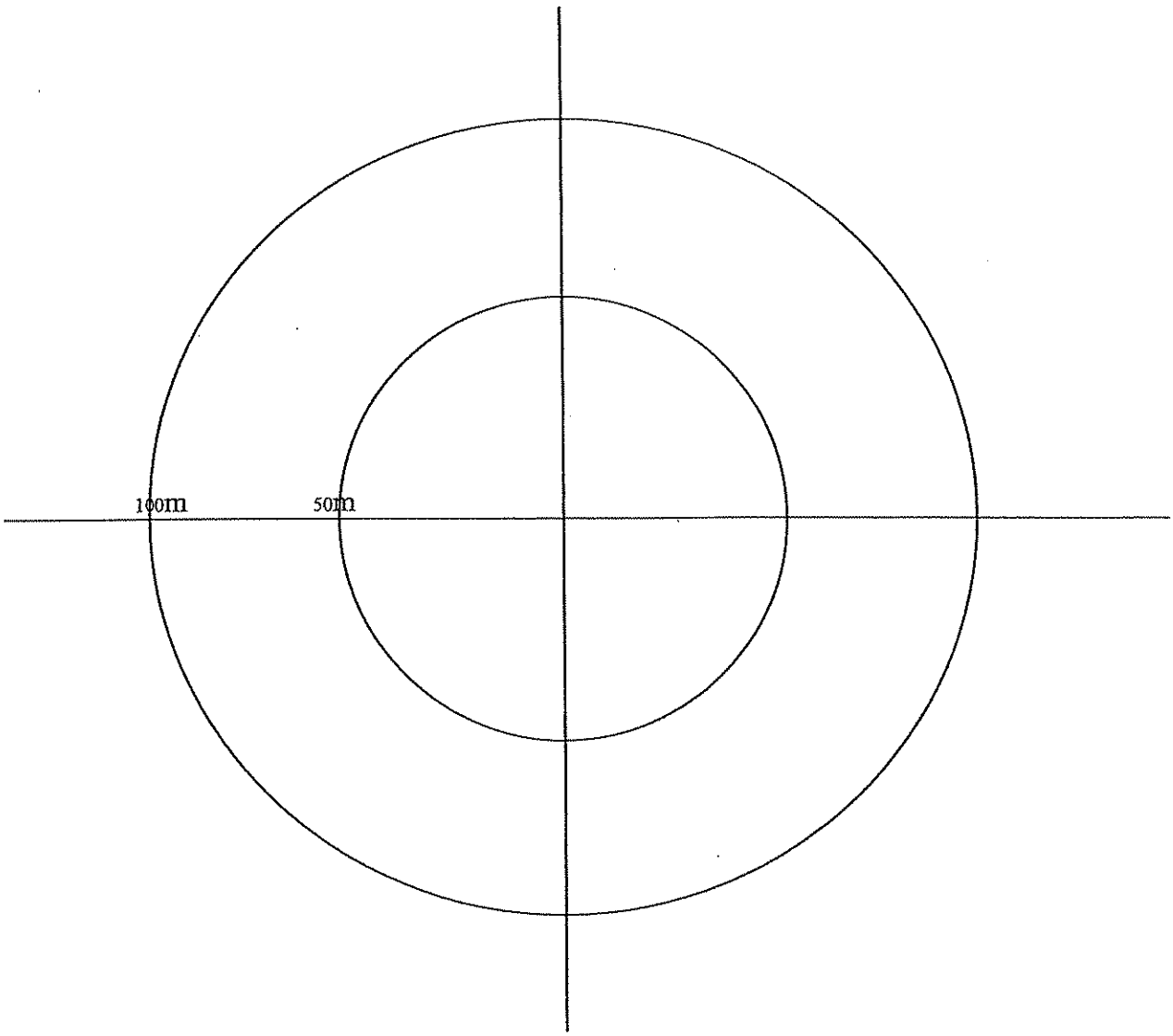
Aerial Foragers	
Species	Tally

Symbols



Height
1 - BTH
2 - close to TH
3 - W BS
4 - WA BS

Outside/Flythru



Point Count Data Form

Observer:	Site:	Date:
Station ID: FF1	Visit #:	Start Time (HH:MM): 0739
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

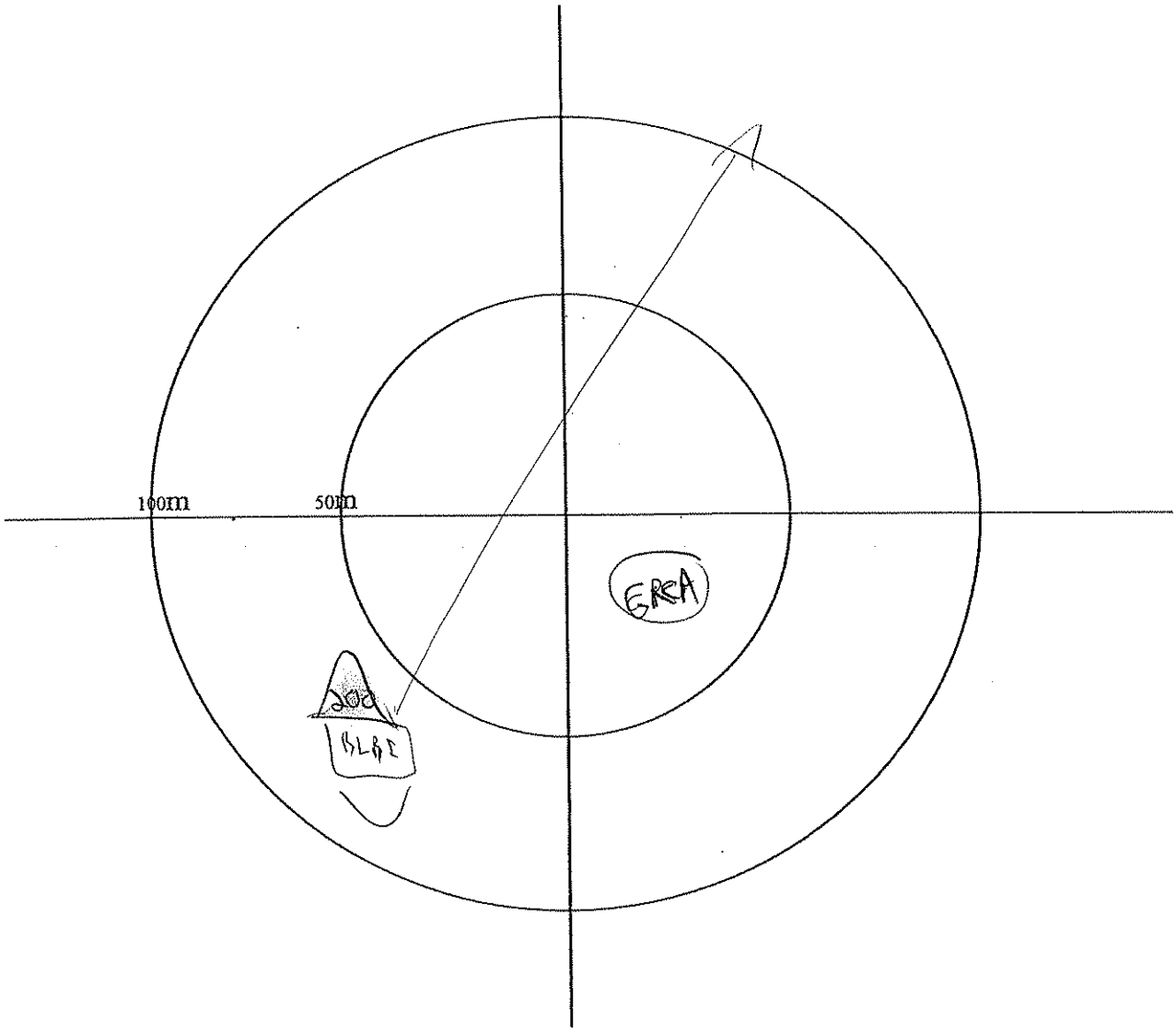
1 - BTH

2 - Close to TH

3 - WBS

4 - WABS

Outside/Flythru
ANCR
ANGO



Migration Monitoring

PROJECT SITE: GESNER

Date: Sept. 3/08

UTM: —

Wind Direction SW

Station Number MO1

Air Temp. 26

Wind Speed 2-3

Time 13:00

Precipitation —

Barometric Pressure

Observers SKM

Cloud Cover (%) 0

Elevation —

Visibility clear

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
13:21	TUVU	1	soaring around trees	A	>1000	N
13:25	TUVU	1	soaring NE	A	0-50	OH
"	"	1	soaring SE	C	>1000	E
13:40	TUVU	1	soaring NW	B	>1000	SW
13:42	"	1	soaring NW	B	200-500	E
"	"	1	soaring S	B	>1000	E
13:45	AMGO	1	flying S	A	0-50	OH
13:53	TUVU	2	soaring NNE	B	200-500	NC
14:12	TUVU	1	soaring all over field	A	0-50	OH
"	RTHA	1	soaring over field	A	200-500	N
14:14	BRNS	2	flying ENE	A	100-200	NW
"	TUVU	4	soaring over woodlot	A->B	>1000	N
14:18	TUVU	1	soaring S, then N	A	100-200	NNW
14:20	MODO	1	flying NNE	A	100-200	NNW
14:29	TUVU	4	soaring gradually NE over field	A-C	0-50	OH
"	AMCR	5	calling from tree	A	200-500	S
14:35	TUVU	1	soaring over field	B	>1000	SE
14:48	AMCR	2	perched in tree calling	A	200-500	SE

Height Zones: A=Within Blade Sphere, B=Close to Blade Sphere, C= Well Below Blade Sphere, D=Well Above Blade Sphere

Monarch Passes 111

Migration Monitoring **PROJECT SITE:** GESNER , p. 2

Date: Sept. 3 /08 Station Number MO2 Time 11:44

Observers SVS Any Weather Changes?

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
11:48	TUVU	2	soaring NE over woodlot	B	71000	E
11:50	TUVU	2	soaring N, then NW	B	100-200	NE
11:52	EUST	1	flying E	A	50-100	N
11:56	AMCO	1	flying S	A	0-50	E
12:00	AMCR	2	flying E; perched in hedgerow	A	200-500	N
12:07	RBTH	1	flying SW	A	50-100	SE
12:10	TUVU	2	soaring WSW over woodlot	B->C	71000	SE
12:18	TUVU	1	soaring W	B	71000	E

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GEGNER

Date: Sept. 3 '08

UTM:

Wind Direction S

Station Number M03

Air Temp. 26

Wind Speed B2

Time 10:30 - 13:30

Precipitation —

Barometric Pressure —

Observers Skem

Cloud Cover (%) 0

Elevation —

Visibility Clear

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
10:36	HOSP	5	@ bird house	A	30-100	S
10:54	TUVU	1	soaring S	B	100-200	E
11	NOPO	1	Flying SE	A	100-300	W
11:00	AMKE	1	swooped, other brought capture to perch nr to feed	A	100-200	NNW
11:03	TUVU	5	soaring in kettle, no directionality evident.	B	>100	NNE
11:06	TUVU	2	soaring S	A→B	100-500	W
	BAOR	2	Flying N	B	11	11
11:09	NOPO	1	Flying S	A	50-100	E
11:16	RBGU	2	rising in kettle, out of sight	B→C	100-300	S
	TUVU	2	soaring rapidly W	B	11	S
11:20	AMGO	1	flying	A	0-50	OH
11:25	RBGU	50	Flying/soaring N	B→C	200-300	E
11	NOHA	1	Flying low over field	A	200-500	N
11:30	NOPO	1	flying S	A	50-100	E
11:36	AMCR	18	flying S; then reversed to stop in woodlot	A	200-500	W
11	AMRO	1	calling	A	0-50	OH
11	AMGO	1	Flying SE	A	0-50	OH
11:38	TUJU	1	soaring S	B	200-500	W
11:43	TUVU	2	soaring N	B	200-500	W/NW

Height Zones: A=Within Blade Sphere, B=Close to Blade Sphere, C= Well Below Blade Sphere, D=Well Above Blade Sphere

Monarch Passes 11

Migration Monitoring

PROJECT SITE: GESNER , p. 2

Date: Sept 3/08

Station Number MO135E

Time 16:24

Observers SKM

Any Weather Changes? —

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
16:25	MODO	3	flying N	A	100-200	ENE
16:34	TUVU	5	flying S, then N	A→B	0-50	ON
16:41	BNKS	1	flying over field	A	0-50	NW
16:53	MODO	1	flying S	A	100-200	E

Monarchs 1

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GESNER

Date: Sept. 3/08

UTM: ~

Wind Direction S

Station Number M01? SE

Air Temp. 27

Wind Speed 3

Time 15:05 - 17:05

Precipitation ~

Barometric Pressure

Observers SKM

Cloud Cover (%) 20

Elevation —

Visibility clear

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
15:08	AMGO	2	Flying SW	A	0-50	S
15:20	TUVU	1	soaring over field	C	>1000	NW
15:21	RTHA	1	foraging over field, then flew to woodlot	A→B	200-500	E
15:23	BLBIRD	8, 10, 20	Flying SE	A	0-50	OH
15:25	TUVU	1	soaring beyond woodlot	B	>1000	SSE
15:26	AMCR	3	perched on hedgerow then flew SW	A	200-500	ENE
15:27	TUVU	2	soaring SW	B	>1000	E
15:35	RTHA	1	soaring along field, gradually W	B	500-1000	S
15:35	AMCR	5	Flying over fields	A	500-1000	S
15:35	TUVU	2	soaring over woodlots	B	>1000	S
15:38	AMCR	1	perched on tree	A	500-1000	NW
15:50	BLBIRD	13	Flying E over field	A	200-500	E
15:50	TUVU	1	soaring W over woodlot, then NE	A→B	500-1000	SE
15:55	"	1	joined above moving NE, then back & forth	B	"	"
15:58	MODO	1	Flying SE	A	0-50	S
18:00	TUVU	5	soaring N in kettle	C	200-500	SE
"	BNKS	1	Foraging over field	A	100-200	S
16:04	TUVU	3	soaring over woodlot, then NW	A-B	200-500	SE
16:05	MODO	1	Flying WSW	A	200-500	NNW
16:06	TUVU	1	Flying WSW to woodlot	B	500-1000	E
16:33	MODO	1	Flying into woodlot	A	200-500	
"	EUST	8	Flying N	A	200-500	ESE

Height Zones: A=Within Blade Sphere, B=Close to Blade Sphere, C= Well Below Blade Sphere, D=Well Above Blade Sphere

Point Count Data Form

Observer: SKM	Site: GES	Date: Oct. 2 / 2008
Station ID: FF1	Visit #: F3	Start Time (HH:MM): 08:30
Beaufort Wind Scale: B2 NW	Cloud Cover (%): 40	Temperature (°C): 5
Precipitation: —	Visibility: clear (flurr)	
Remarks:		

Aerial Foragers	
Species	Tally

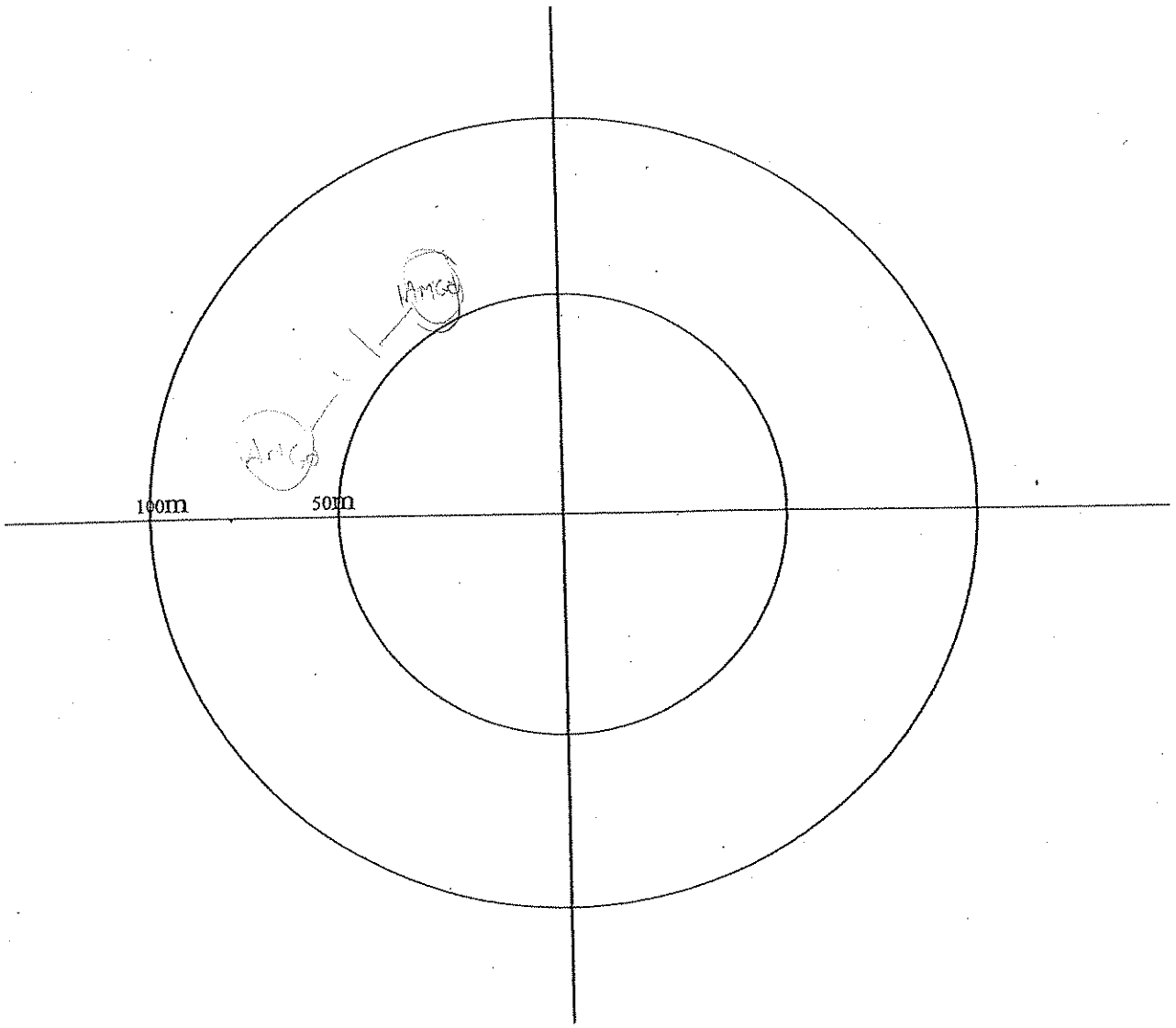
Symbols

- (WBL) Single bird, singing/calling
- (RWBL) (RWBL) Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- O—→O Known change in position

Height

1 - BTH
2 - close to TH
3 - U BS
4 - WA BS

Outside/Flythru
HCLL
AmCR



Point Count Data Form

Observer:	Site:	Date:
Station ID: FF3	Visit #:	Start Time (HH:MM): 07:05
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL + RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

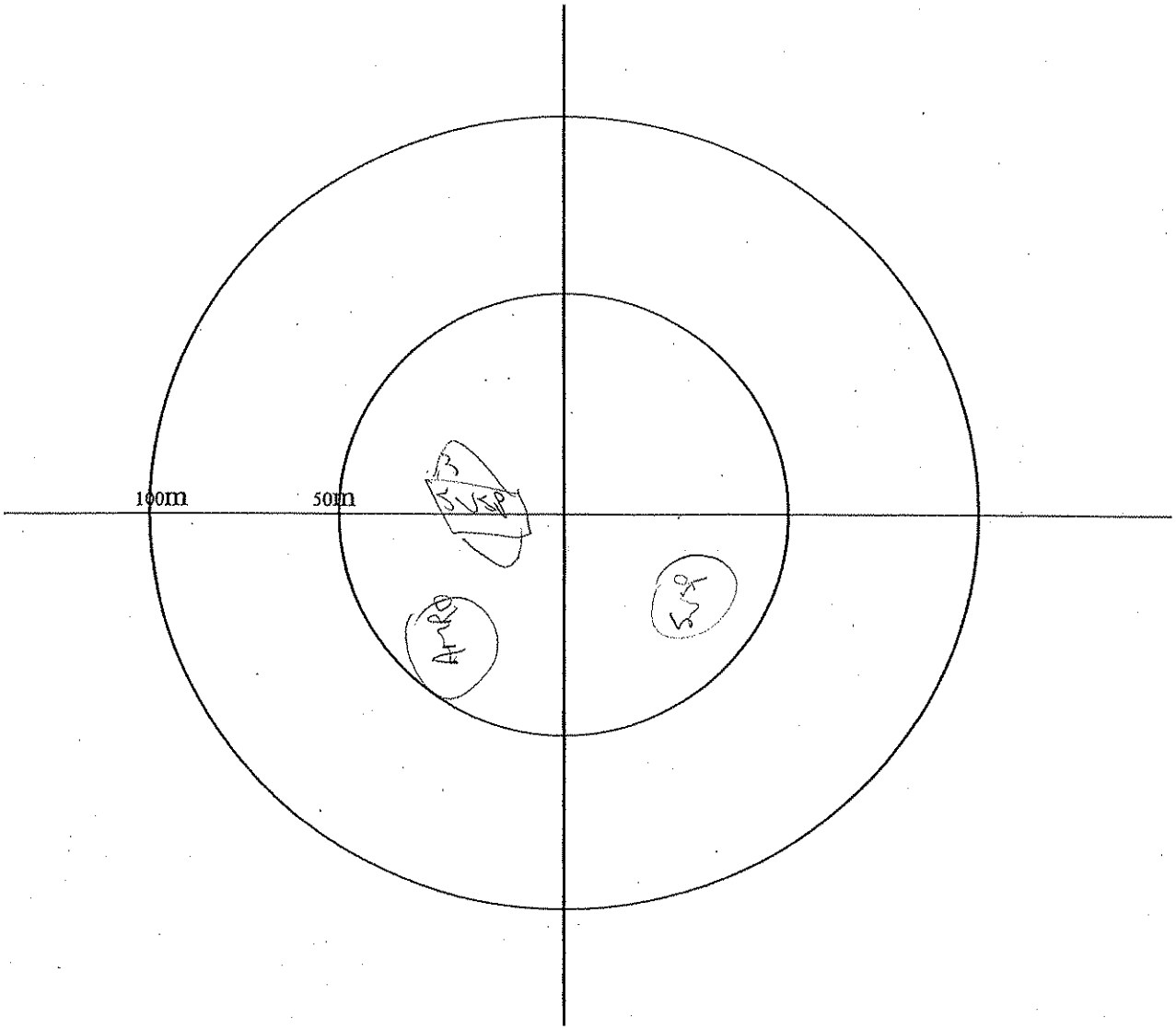
1 - BTH

2 - Close to TH

3 - V BS

4 - WA BS

Outside/Flythru
MOAO II
BLJA III



Point Count Data Form

Observer: Skm	Site: EC5	Date: Oct. 2108
Station ID: R10 T	Visit #: F3	Start Time (HH:MM): 07:18
Beaufort Wind Scale: B2 NW	Cloud Cover (%): 30	Temperature (°C): 6
Precipitation: —	Visibility: —	
Remarks:		

Aerial Foragers	
Species	Tally

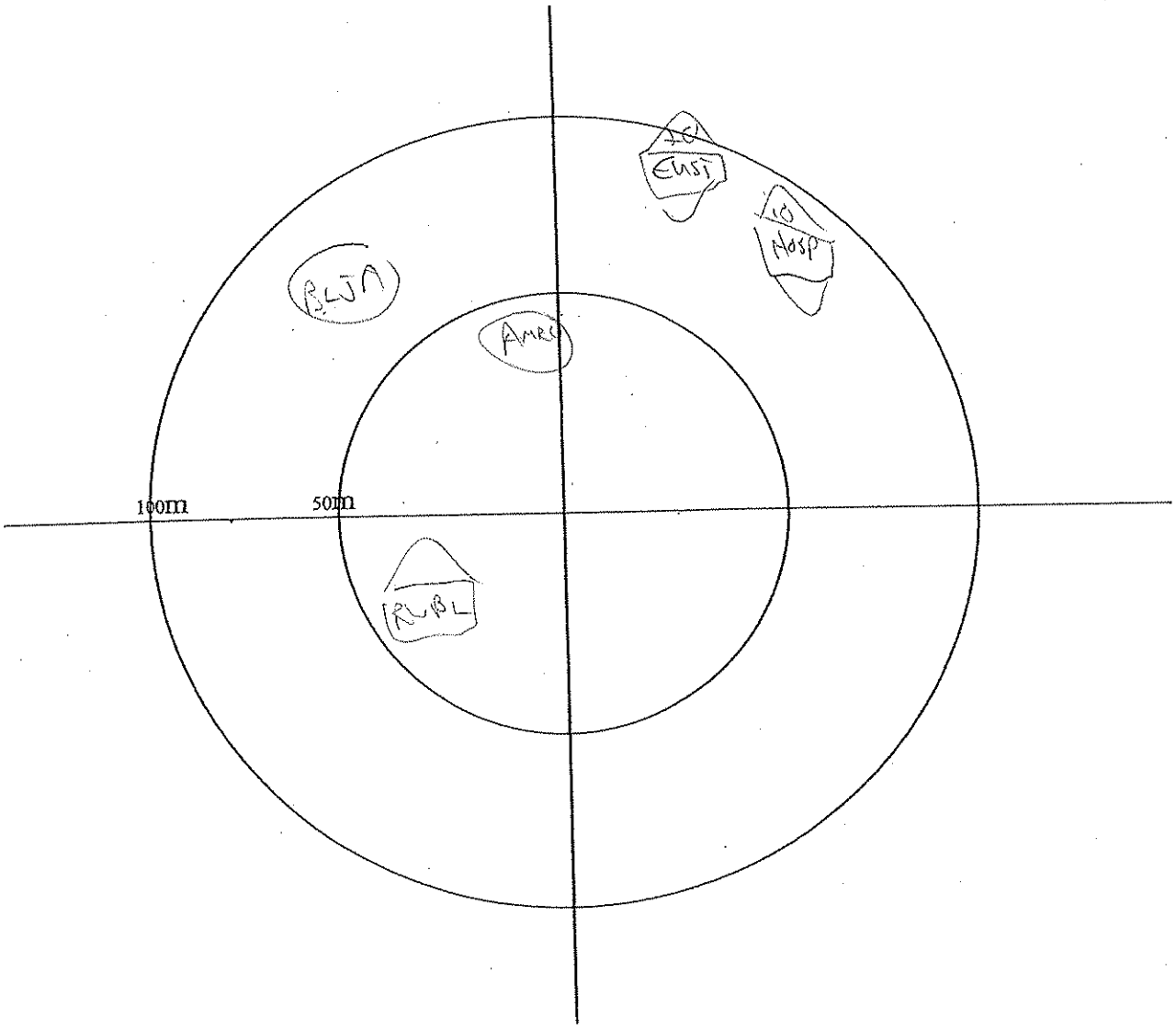
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - U BS
4 - WABS

Outside/Flythru
AMGO
AmRO
MODO III
SVSP III
RBGU
AmRO



Point Count Data Form

Observer:	Site:	Date:
Station ID: FF 17	Visit #:	Start Time (HH:MM): 0732
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

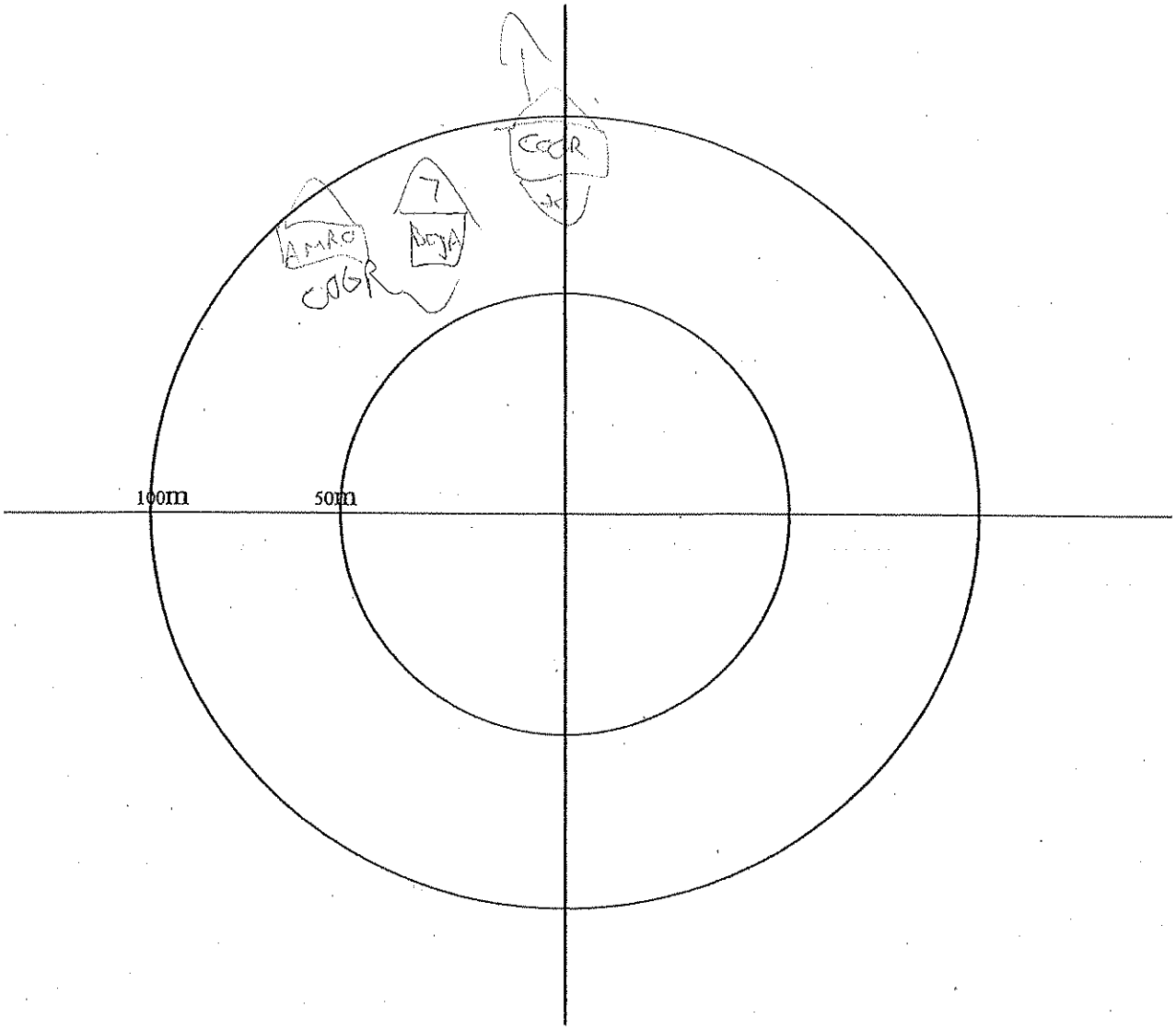
1 - BTH

2 - Close to TH

3 - V BS

4 - WA BS

Outside/Flythru
CONE 2



Point Count Data Form

Observer:	Site:	Date:
Station ID:	Visit #:	Start Time (HH:MM):
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL — RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

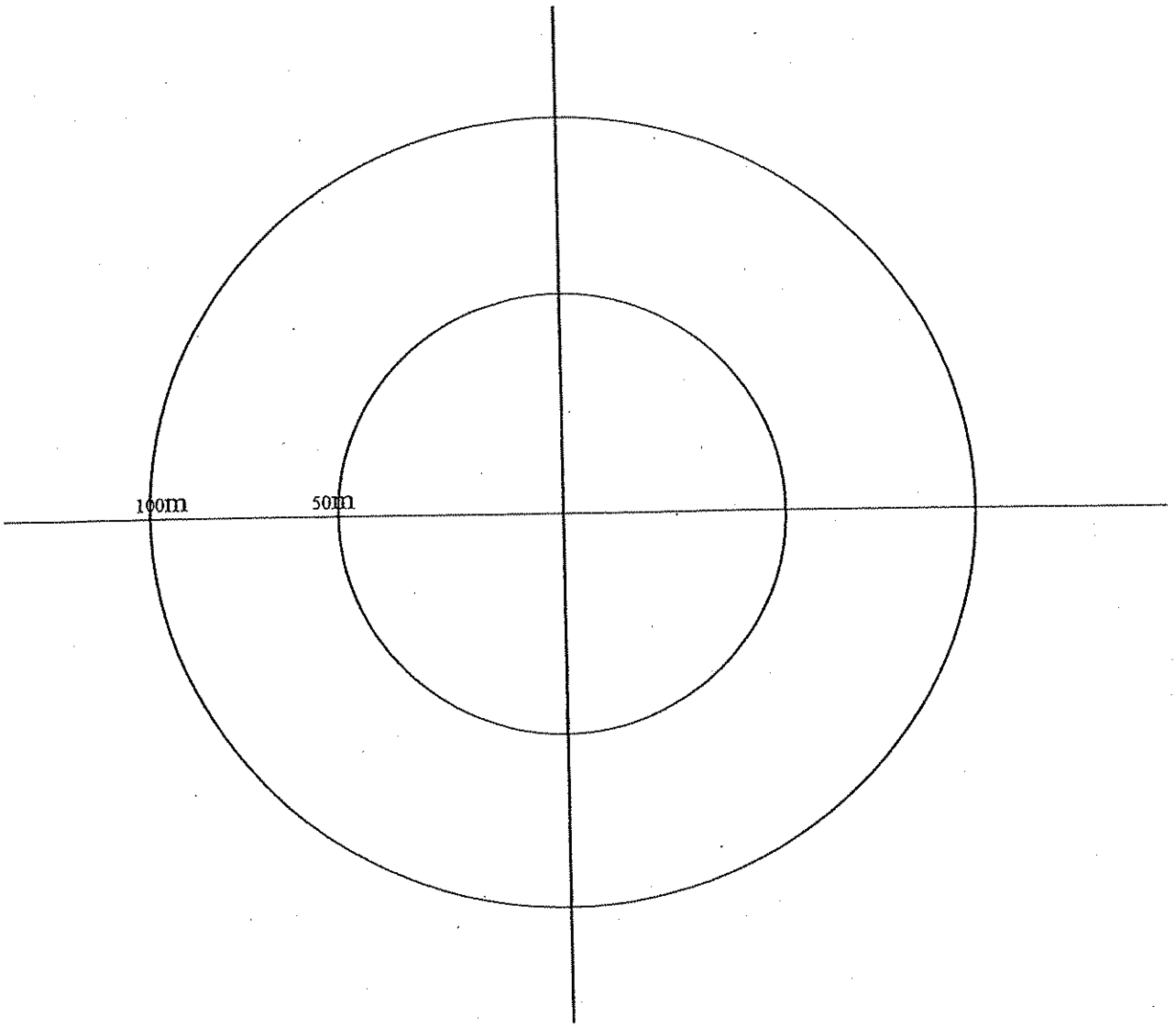
1 - BTH

2 - Close to TH

3 - V BS

4 - WAB S

Outside/Flythru



Point Count Data Form

Observer:	Site:	Date:
Station ID:	Visit #:	Start Time (HH:MM): 08:17
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

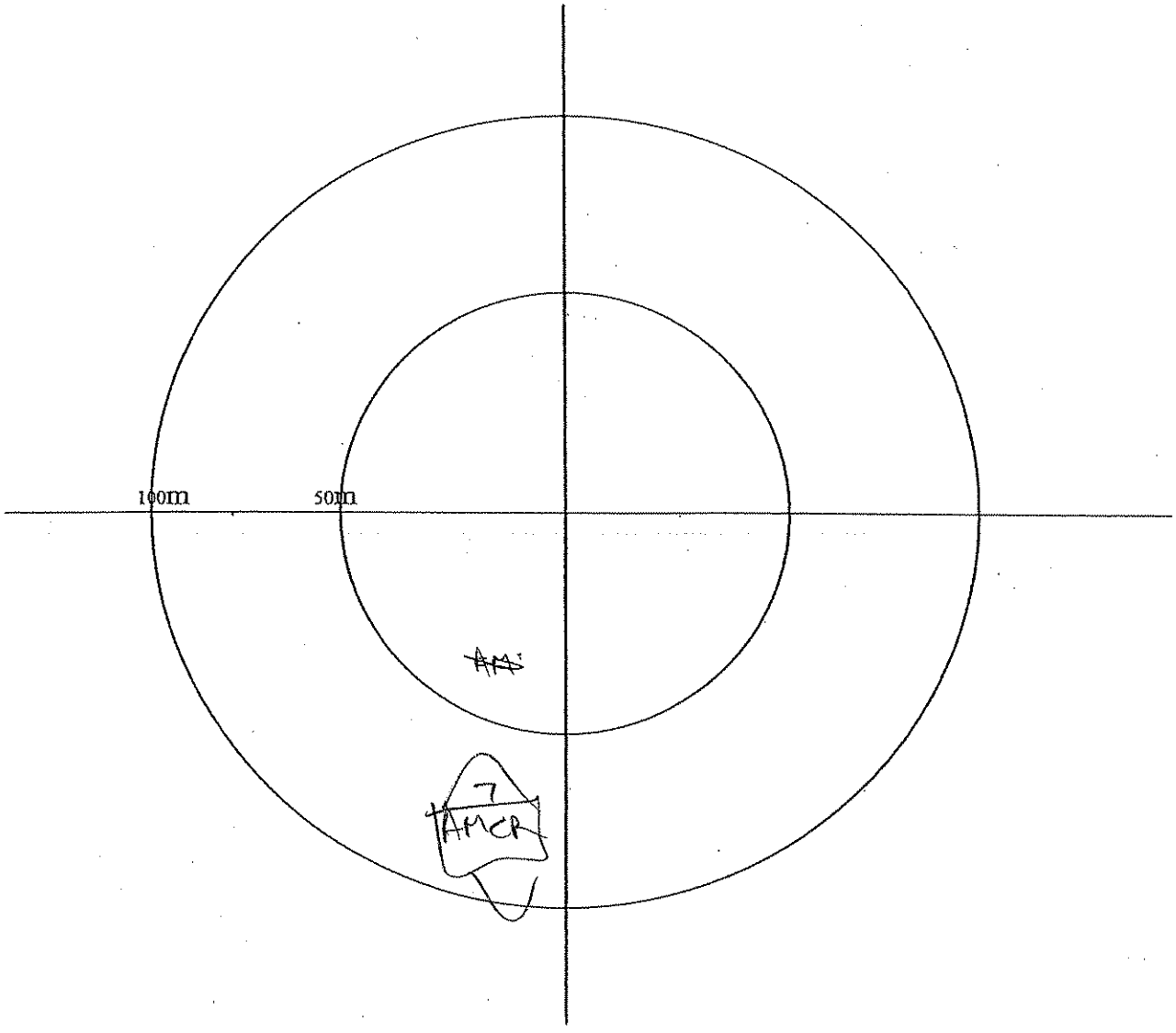
1 - BTH

2 - Close to TH

3 - W BS

4 - WA BS

Outside/Flythru
CAGO 25
TUVU 14
COST 7
BLJA 3 5 4 BO
AMCR 10
TUVU 3



Point Count Data Form

Observer:	Site:	Date:
Station ID:	Visit #:	Start Time (HH:MM): 0802
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL + RWBL — Diff. birds of same sp.

Pair together

Family group

Obs. but not calling/singing

Known change in position

Height

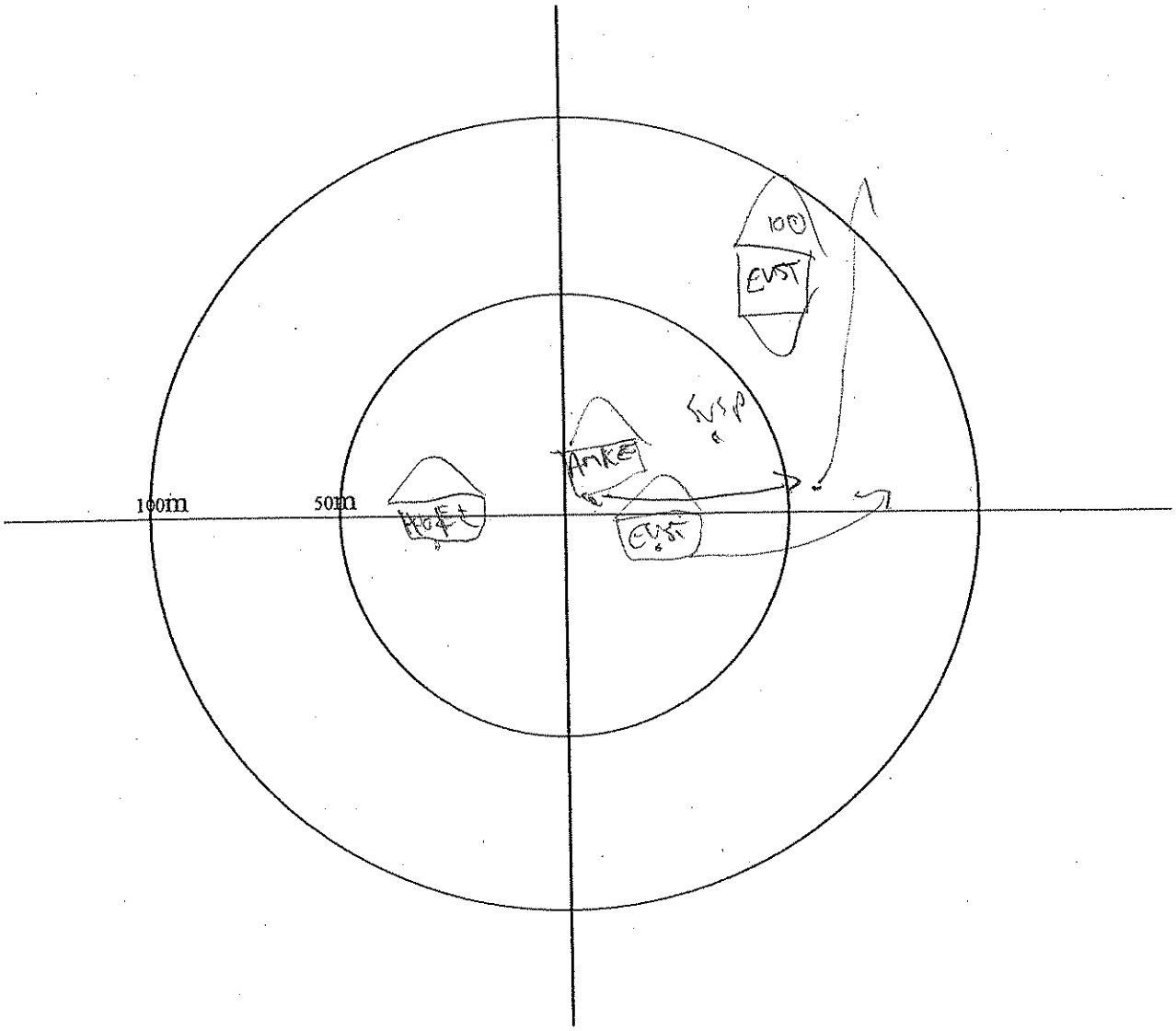
1 - BTH

2 - Close to TH

3 - U BS

4 - WABS

Outside/Flythru
AMCR
BLJA
RWBL 20
HOLA 7



Point Count Data Form

Observer: SKM	Site: GES.	Date: Oct. 2/08
Station ID: PF9	Visit #: R2	Start Time (HH:MM): 07:44
Beaufort Wind Scale: B3 NW	Cloud Cover (%): 20	Temperature (°C): 5
Precipitation:	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

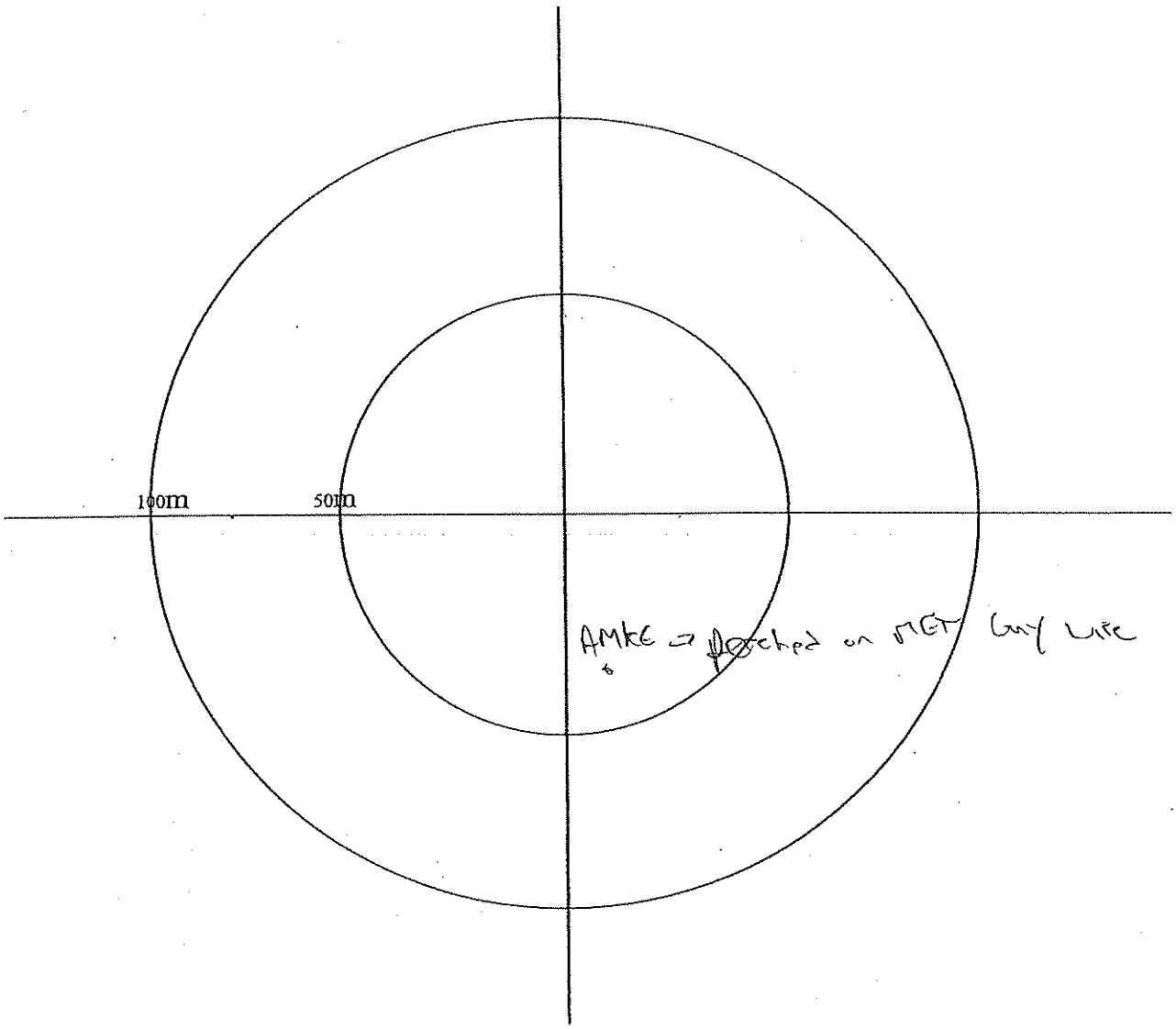
- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs. but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - V BS
4 - WABS

Outside/Flythru
RUBE 60+40
~~RBGU~~
~~RBTH~~
AMGO
BRNS
AMRO

HOLA 11
BLTP 2



Migration Monitoring

PROJECT SITE: GESNER

Date: Oct. 3/08

UTM:

Wind Direction BS/W

Station Number M3

Air Temp. 13

Wind Speed "

Time 15:20

Precipitation —

Barometric Pressure

Observers Skr

Cloud Cover (%) 100

Elevation

Visibility clear

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
15:20	AMKE	2	perched on wire; foraging over field still in area @ 15:41	A	0-50	E
15:22	EUST	1	perched on wire	A	0-50	W
15:23	TUVU	4	moving NW	B	200-500	SW
15:25	TUVU	3	soaring W	A-B	50-1000	S
15:33	AMCR	5	flying W	B	500-1000	S
	TUVU	1	soaring SW	A	200-500	N
15:42	"	4	soaring over woodlot	B-C	500-1000	S
	TUVU	2	soaring NW	C	0-50	OH
15:48	NOHA	1	working fields	A	50-200	S
	TRES	4	flying W	A	0-50	OH
16:11	AMKE		2 foraging perched on wire			
16:14	TUVU	8	soaring over woodlot	A-C	500-1000	S
16:15	AMCR	3	flying SW	B-C	500-1000	SW
16:28	TUVU	3	soaring E	B-C	100-200	SE
16:34	NOHA	1	flying SW	A-B	200-500	NW
16:37	MODO	2	flying SW, then NW	A	100-200	N
16:39	"	1	flying into field	A	0-50	N
16:41	BLJA	1	flying NW	B	100-200	S

Height Zones: A=Within Blade Sphere, B=Close to Blade Sphere, C= Well Below Blade Sphere, D=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GESNER , p. 2

Date: Oct. 2 '08 Station Number US03 Time 16:43

Observers Skm Any Weather Changes? no

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
16:44	MODO	9	flying NW	A	50-100	SW
16.46	TUVU	1	soaring E	A	200-500	
1648	EUST	50	perched on wire + on road	A	50-100	NE
16:49	MODO	1	flying W	A	0-50	N
16.50	TUVU	1	soaring over woodlot	B	200-500	SSE
16:53	NOHA (M)	1	working field to W	A	200-500	N
16:59	AMCR	1	in field	A	0-50	NW
17:02	MODO	2	flying SW	A	100-200	N
1703	NOHA (M)	1	working field to S	A	100-200	E
1711	EUST	50	flying W	A	100-200	N
17:12	TUVU	1	flying W	A-B	200-500	S
17:16	EUST	2	flying S	A	200-500	W

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GESNER

Date: Oct. 2 '08

UTM:

Wind Direction NW

Station Number Bat 1

Air Temp. 13

Wind Speed B 4-5

Time 11:00

Precipitation —

Barometric Pressure

Observers Skm

Cloud Cover (%) 10

Elevation —

Visibility clear

Note: when leaving, noted ~60 BUSA in flock flying along large woodlot to S of Study Area

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
11:00	TUVU	4	soaring	B→C	500-1000	ENE
11:10	AMKE	1	flying over field, landing in field	A	0-50	S
11:15	TUVU	1	soaring	C	500-1000	N
11:17	HOLA	7	Flying WNW	A	0-50	N
11:19	AMKE	2	foraging over field	A	50-100	S
11:20	HOLA	6	Flying into field	A	100-200	NE
11:24	NOHA ♂	1	foraging over field	A	50-100	N
	TUVU	1	soaring SW	B-C	500-1000	NW
11:25	TUVU	3	soaring SW	C	500-1000	S
	h	1	soaring W	B	0-50	ON
11:29	TUVU	3	soaring SW	B-C	1000	NW
11:34	TUVU	1	soaring E/SW	B-C	200-500	N
11:30	TUVU	7	soaring SW	B	1000	S
11:40	KILL	1	flying into field	A	200-500	SSW
11:41	TUVU	5	soaring SW	B	1000	N
11:45	NOFL	1	Flying W into ~~woodlot~~ willow	A	0-50	ON
11:52	NOHA ♀	1	foraging over field; stooped, no success	A	0-50	N
11:52	TRES	1	over field	A	0-50	NW

Height Zones: A=Within Blade Sphere, B=Close to Blade Sphere, C= Well Below Blade Sphere, D=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: Gesler, p. 2

Date: Oct. 2/01

Station Number Bat 2

Time 12:00

Observers Skm

Any Weather Changes? ~40-50% c.c.

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
12:00	MODO	1	perched on wire	A	200-500	W
	AMKE	1	flying over field	A	0-50	N
12:01	TUVU	1	soaring W	B	>1000	N
12:05	MODO	1	flying N	A	0-50	SE
	CUST	1	"	A	"	"
12:07	TUVU	2	soaring NE	B	500-1000	ESE
12:09	TRES	1	flying W	A	0-50	SE
	HOLA	1	flying W	A	"	"
12:15	HOLA	3	flying WSW	A	50-100	S
12:19	TUVU	1	soaring	B-C	>1000	W
12:25	TUVU	3	soaring over woodlot	B-C	>1000	E
12:34	TUVU	2	soaring E	A-B	100-200	N
12:36	AMKE	1	flying W	A	100-200	W
12:39	TUVU	2	soaring W	B	500-1000	S
12:46	AMKE	1	flying over field	A	50-100	S
12:53	MODO	1	flying N	A	0-50	E

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GESNER

Date: Oct. 2 / 08

UTM:

Wind Direction B 4-5

Station Number MM01

Air Temp. 13

Wind Speed NW

Time 13:09

Precipitation —

Barometric Pressure

Observers Shm

Cloud Cover (%) 50%

Elevation

Visibility clear

Note: saw plane land @ runway near Highgate.

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
13:16	TUVU	2	soaring SW	B-C	500-1000	N
13:20	NOHA (F)	1	flying from woodlot to harass crow; then flew SW over field	A	100-500	NE
	TUVU	4	flying NW	A-B	200-500	NE
	AMCR	11	flying from woodlot to perch on snag	A	11	11
	HOLA	2	flying in field	A	11	11
	HOLA	11	flying SE, away from NOHA	A	50-100	N
13:26	TUVU	1	flying ENE	B	71000	NE
13:27	11	1	soaring over field, gradually moving N	A	200-500	E
13:31	AMCR	1	flying E over field	A	100-200	N
13:35	AMCR	3	perched on snag	A	200-500	E
13:37	TUVU	3	soaring over field, 1 soaring E	B-C	500-1000	NW
13:45	HOLA	4	flying USW	A	50-100	NW
13:50	TUVU	3	soaring SW	B-C	200-500	NW
13:52	EUST	50	flying S	A	0-50	E
	AMCR	4	perched on snag	A	100-500	NE
	TUVU	1	perching in hedgerow	A	200-500	NE
13:56	HOLA	4	flying NNW in field	A	200-500	NE
13:57	TUVU	1	soaring N	B	200-500	NE
14:00	11	1	soared over woodlot & then W across field	A-B	11	11
	USSP	20	moving around hedgerow	A	11	11
14:08	TUVU	1	soaring W	B-C	11	11

Height Zones: A=Within Blade Sphere, B=Close to Blade Sphere, C= Well Below Blade Sphere, D=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: E ESNER , p. 2

Date: Oct. 2 /04

Station Number NW 101

Time 14:10

Observers Sam

Any Weather Changes? 100% cloud

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
14:11	TRES	1	Flying NW	A	0-50	OA
14:14	BLJA	7	Flying N w/ cliff hedgerow	A	200-500	NE
	AMGO	1	Flying E	A	0-50	OA
14:19	GUST	30	perched on wire	A	100-200	SE
14:24	"	200	moving about field > continuous, parallel to SE	A	50-100	SE
14:26	COGR	1	Flying ESE	B	50-100	NE
14:35	BLJA	6	Flying NW	A	0-50	NE
14:42	"	10	flying U	A	200-500	N
14:50	AMCR	2	perched on snag	A	500-1000	NW
15:03	GUST		> 200-500 continuously moving across fields over all areas			

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Monarch 1

Point Count Data Form

Observer: [illegible]	Site: GC	Date: 10/30
Station ID: FP-1	Visit #: FY	Start Time (HH:MM): 07:47
Beaufort Wind Scale: B1 WNW	Cloud Cover (%): 0	Temperature (°C): -2
Precipitation: ____	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

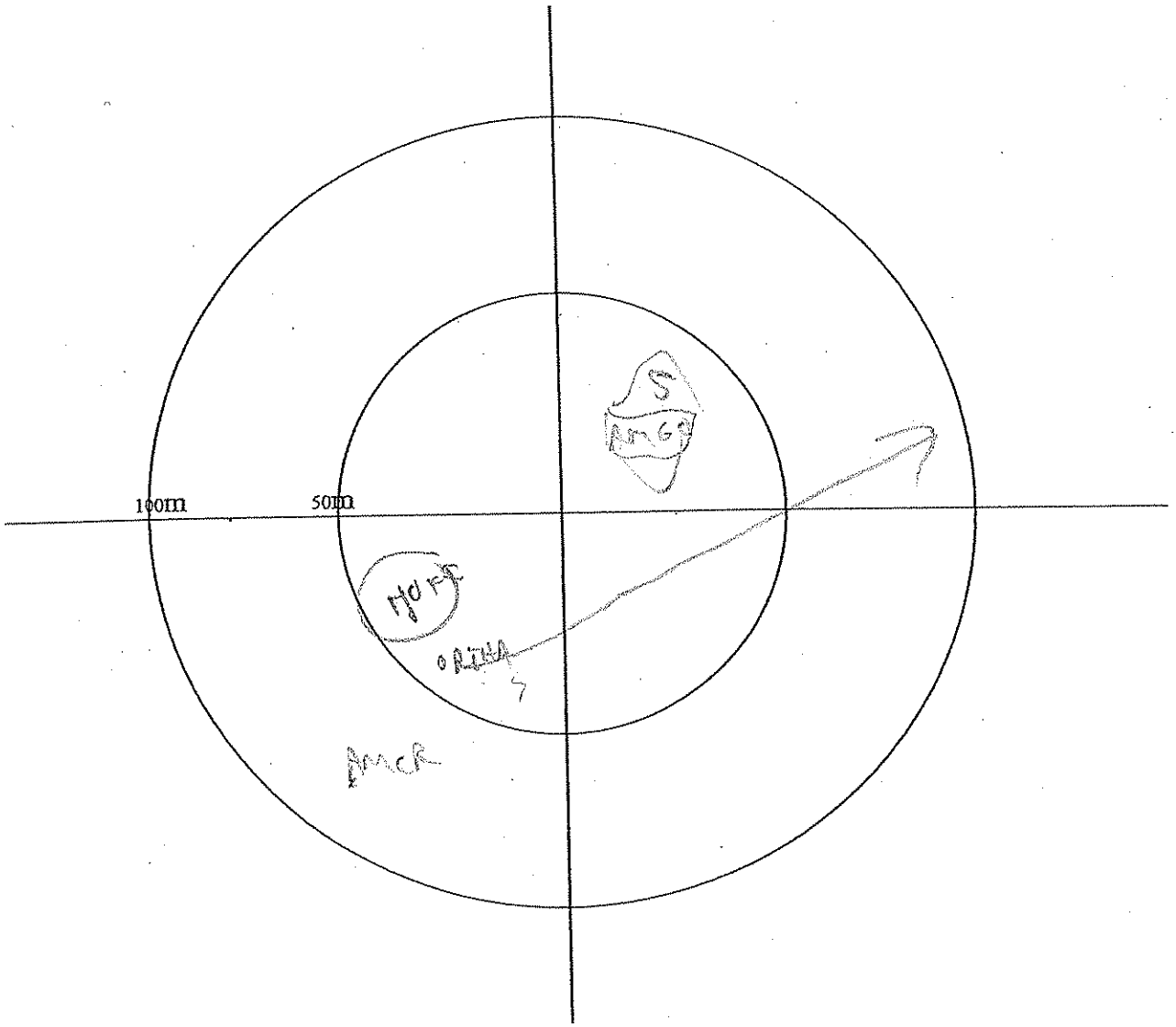
Symbols

- (WBL) Single bird, singing/calling
- (RWBL) (RWBL) Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- O—>O Known change in position

Height

1- BTH
2- close to TH
3- WBS
4- WABS

Outside/Flythru
FOST 30
RLAC 130



Point Count Data Form

Observer:	Site:	Date:
Station ID:	Visit #:	Start Time (HH:MM):
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

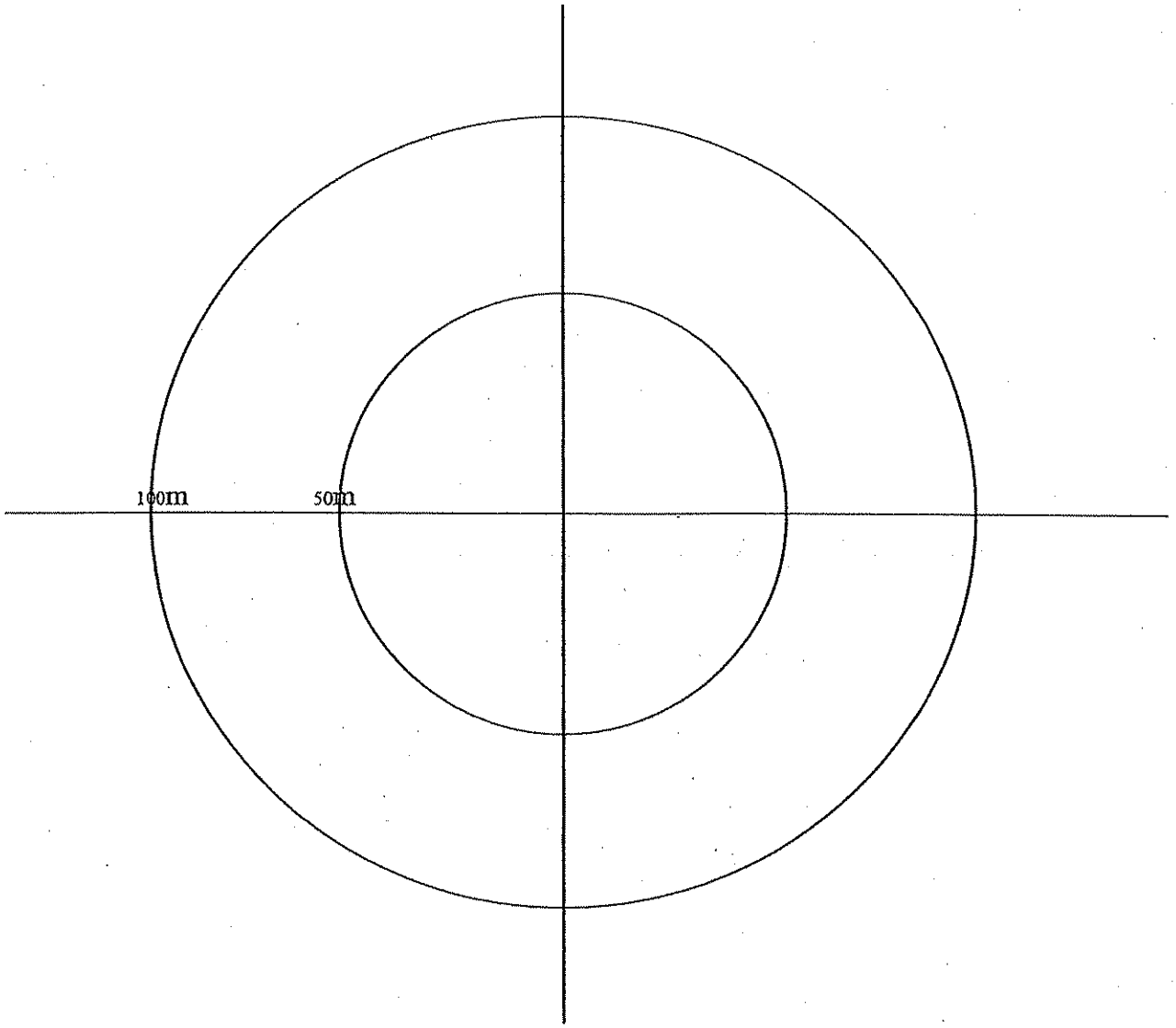
1 - BTH

2 - close to TH

3 - U BS

4 - WABS

Outside/Flythru



Point Count Data Form

Observer: Skin	Site:	Date:
Station ID: FR6	Visit #:	Start Time (HH:MM): 06:32
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C): 06
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

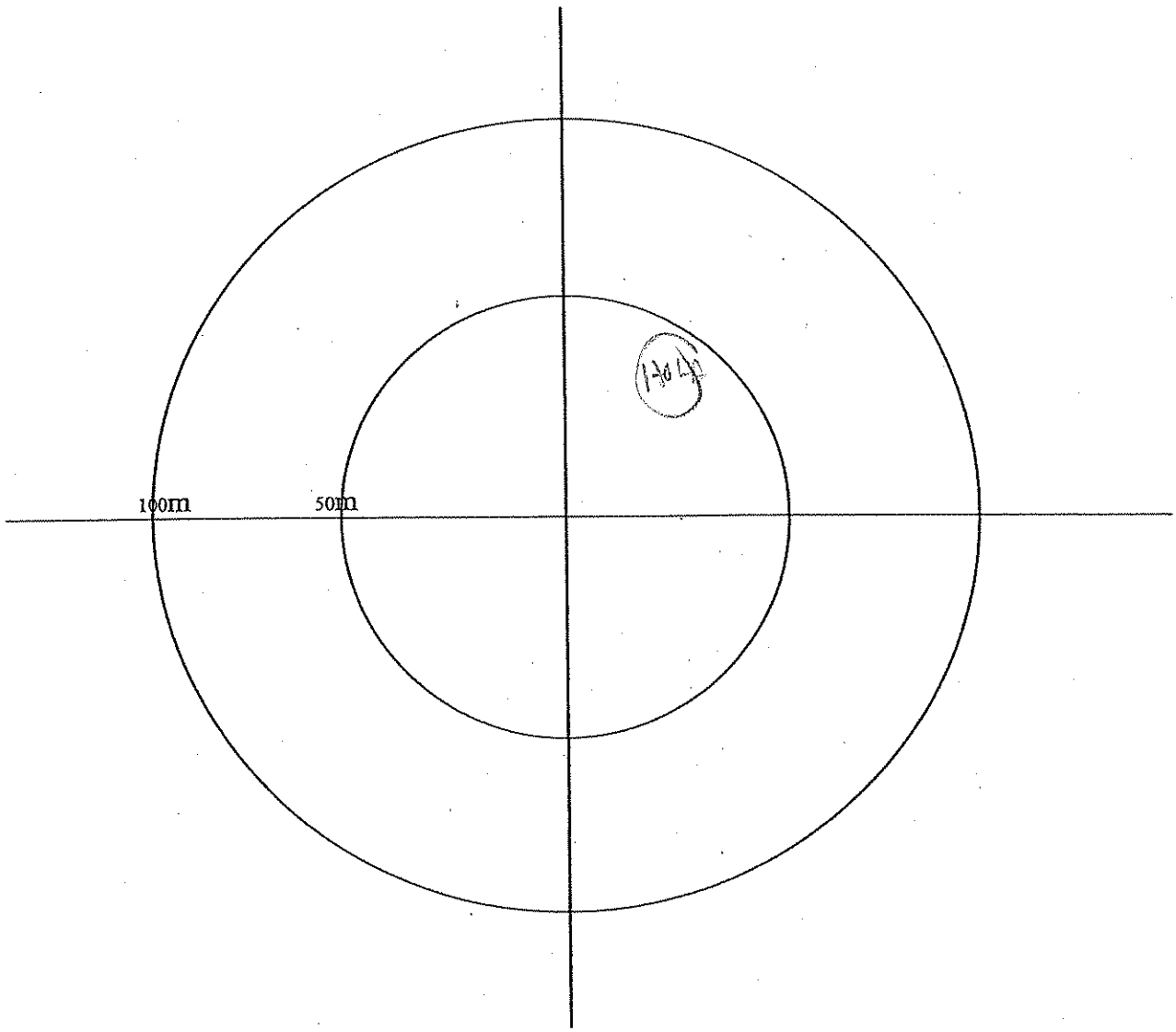
Symbols

- (RWBL) — Single bird, singing/calling
- (RWBL) + (RWBL) — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - WBS
4 - WABS

Outside/Flythru
RBGU 1q FTN 135
ENTT 70' +160
Points 5



Point Count Data Form

Observer: Skm	Site: GCS	Date: 10/30
Station ID: PP08	Visit #: P4	Start Time (HH:MM): 08:20
Beaufort Wind Scale: 3 / WNW	Cloud Cover (%): 0	Temperature (°C): -2
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

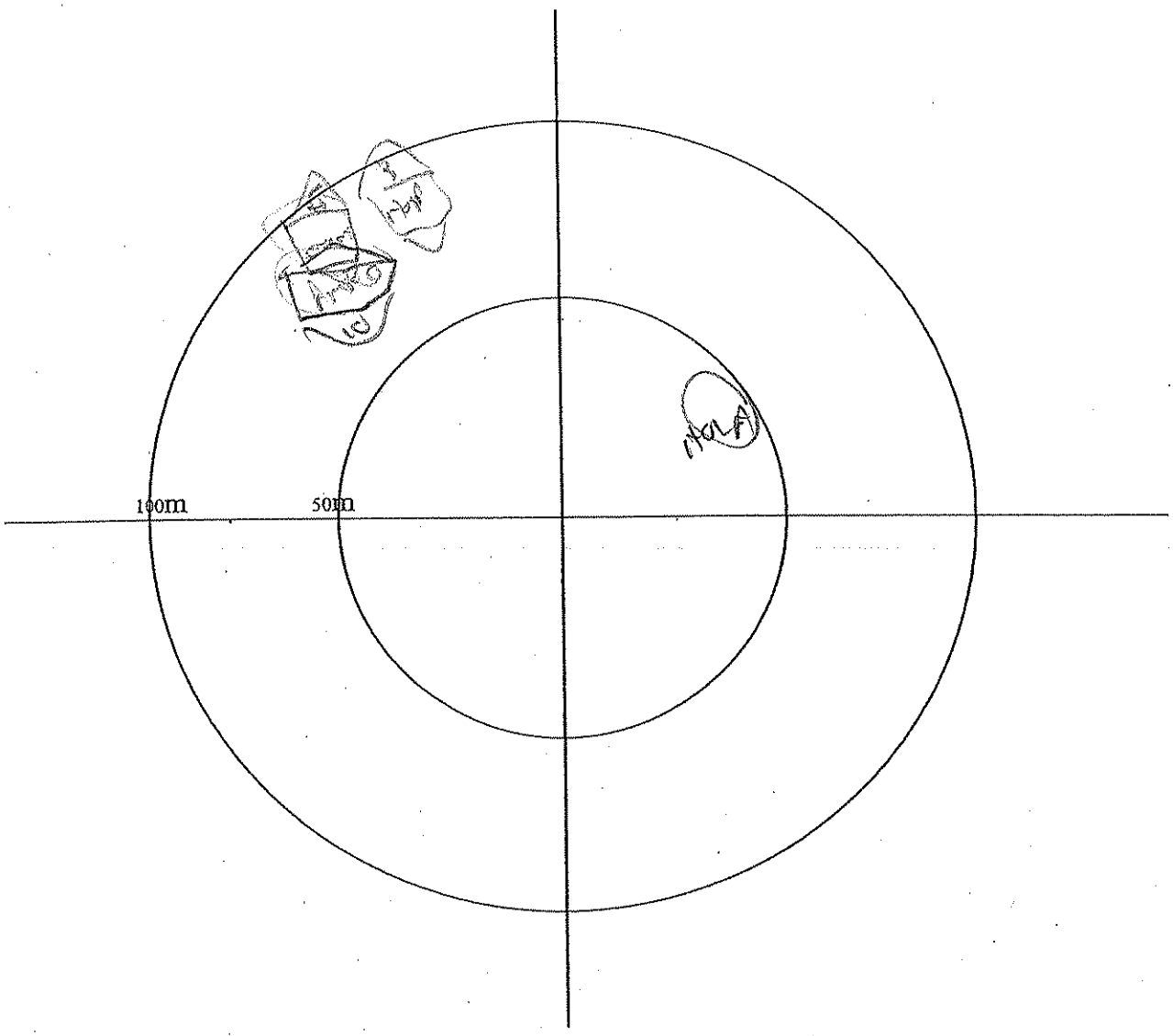
- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - U BS
4 - WABS

Outside/Flythru
CCLL
RBGR 11 +10 +20 +10
AMCR 11
NOFL
AMRO 5
DEBI 15

NO NA
AMRO 15



Point Count Data Form

Observer: Shan	Site: 665	Date: Oct. 20/08
Station ID: PC 9	Visit #: R3	Start Time (HH:MM): 07:55
Beaufort Wind Scale: B1 VWW	Cloud Cover (%): 0	Temperature (°C): -2
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

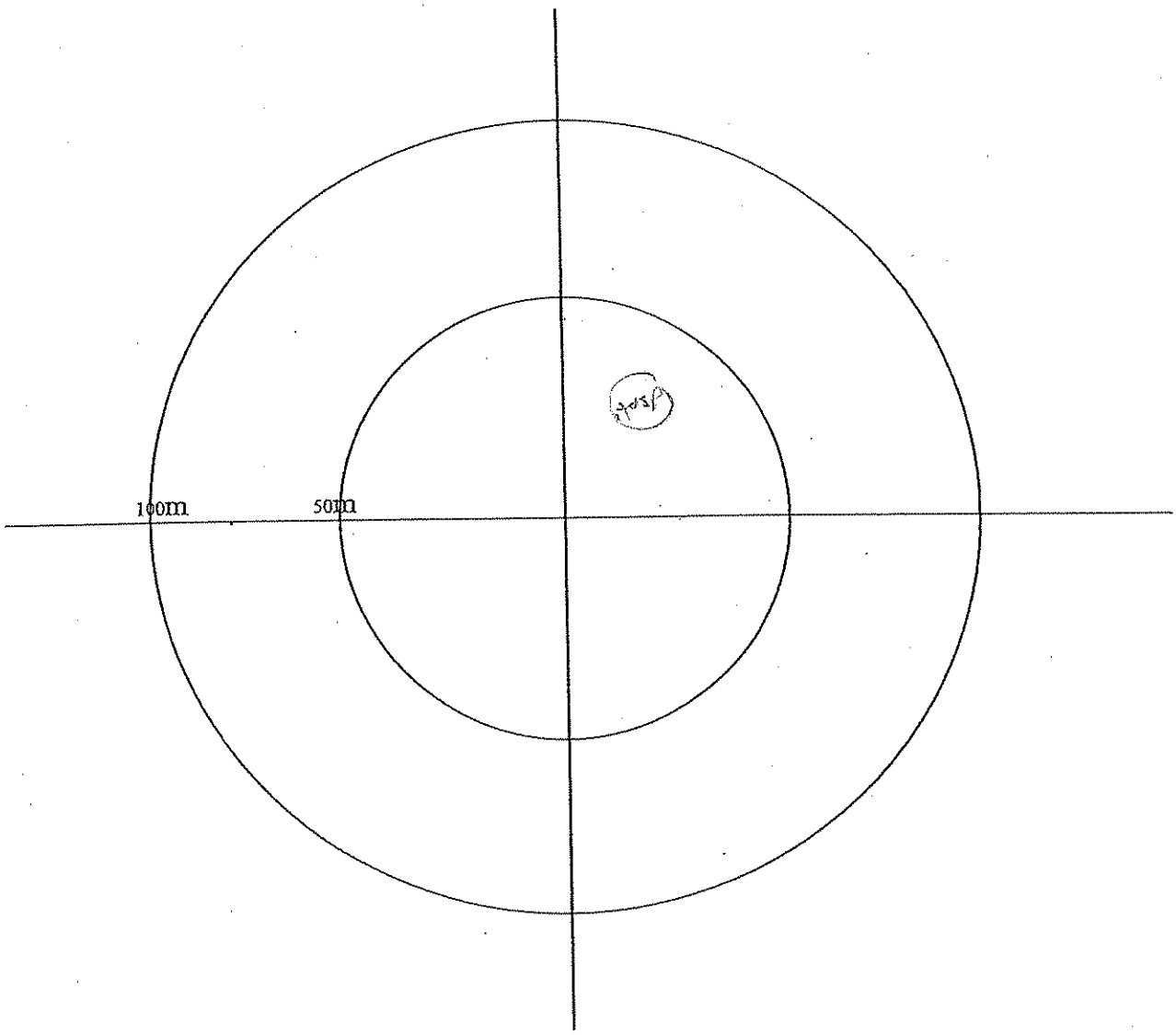
Symbols

- RUBL — Single bird, singing/calling
- RUBL — RUBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - V BS
4 - WA BS

Outside/Flythru
Amer
RUBL
AMCR
Blackbird 40



Point Count Data Form

Observer:	Site:	Date:
Station ID: FR12	Visit #:	Start Time (HH:MM): 05:06
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL + RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

1 - BTH

2 - close to TH

3 - V BS

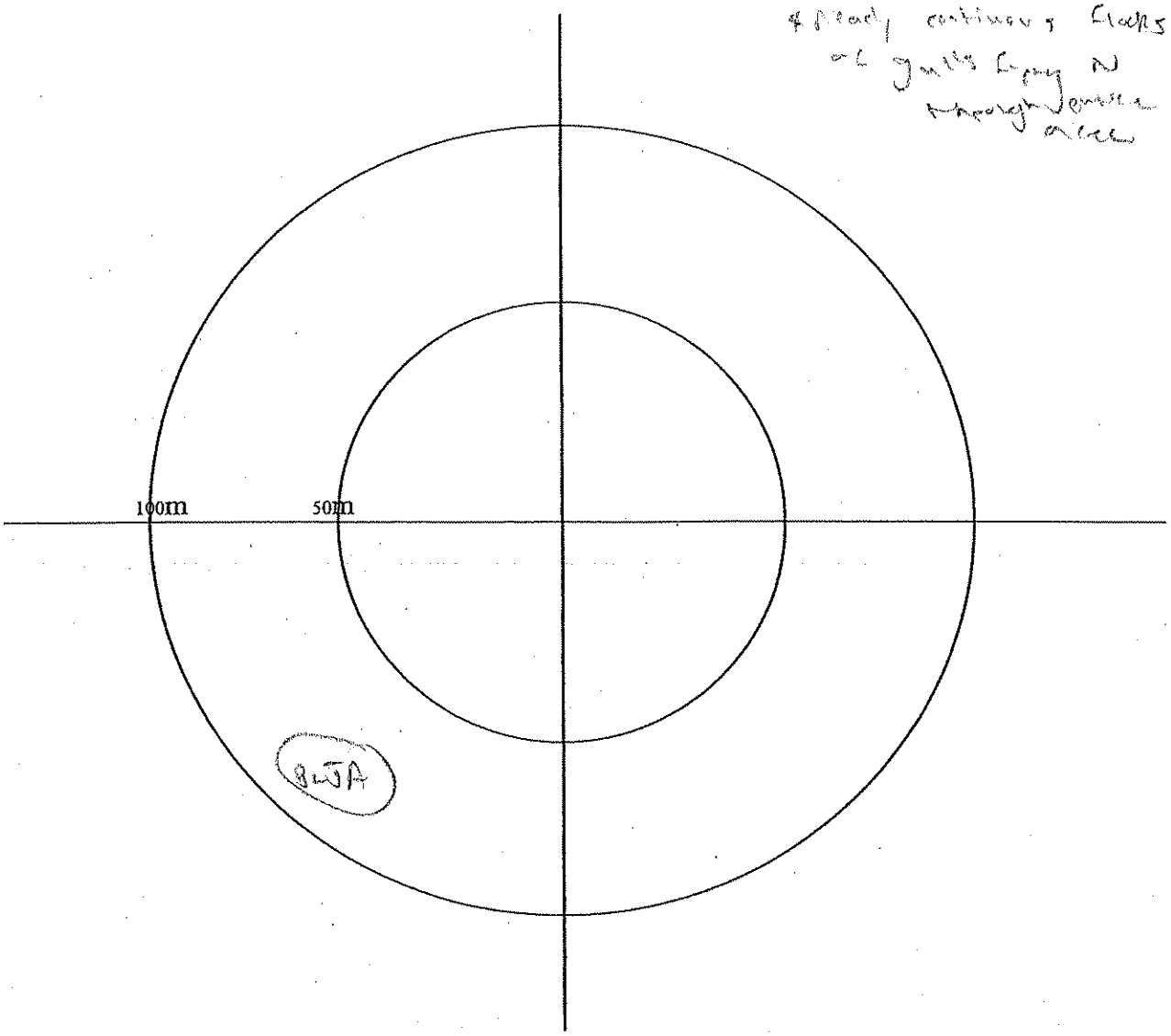
4 - WABS

Outside/Flythru
AMGO 11 + 12
CACO (w/)
AMCR III
PLTA 12
AMRO
NOCA CH fly N

Marked 10 +17 +25

MODO 11

Heard/ continuous flocks of gulls flying N through survey area



Point Count Data Form

Observer: SKM	Site: GCS	Date:
Station ID: PF15	Visit #: P4	Start Time (HH:MM): 0730
Beaufort Wind Scale: 1 NW	Cloud Cover (%): 0	Temperature (°C): -2
Precipitation: —	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

Symbols

RWBL — Single bird, singing/calling

RWBL → ← RWBL — Diff. birds of same sp.

Pair together

Family group

Obs., but not calling/singing

Known change in position

Height

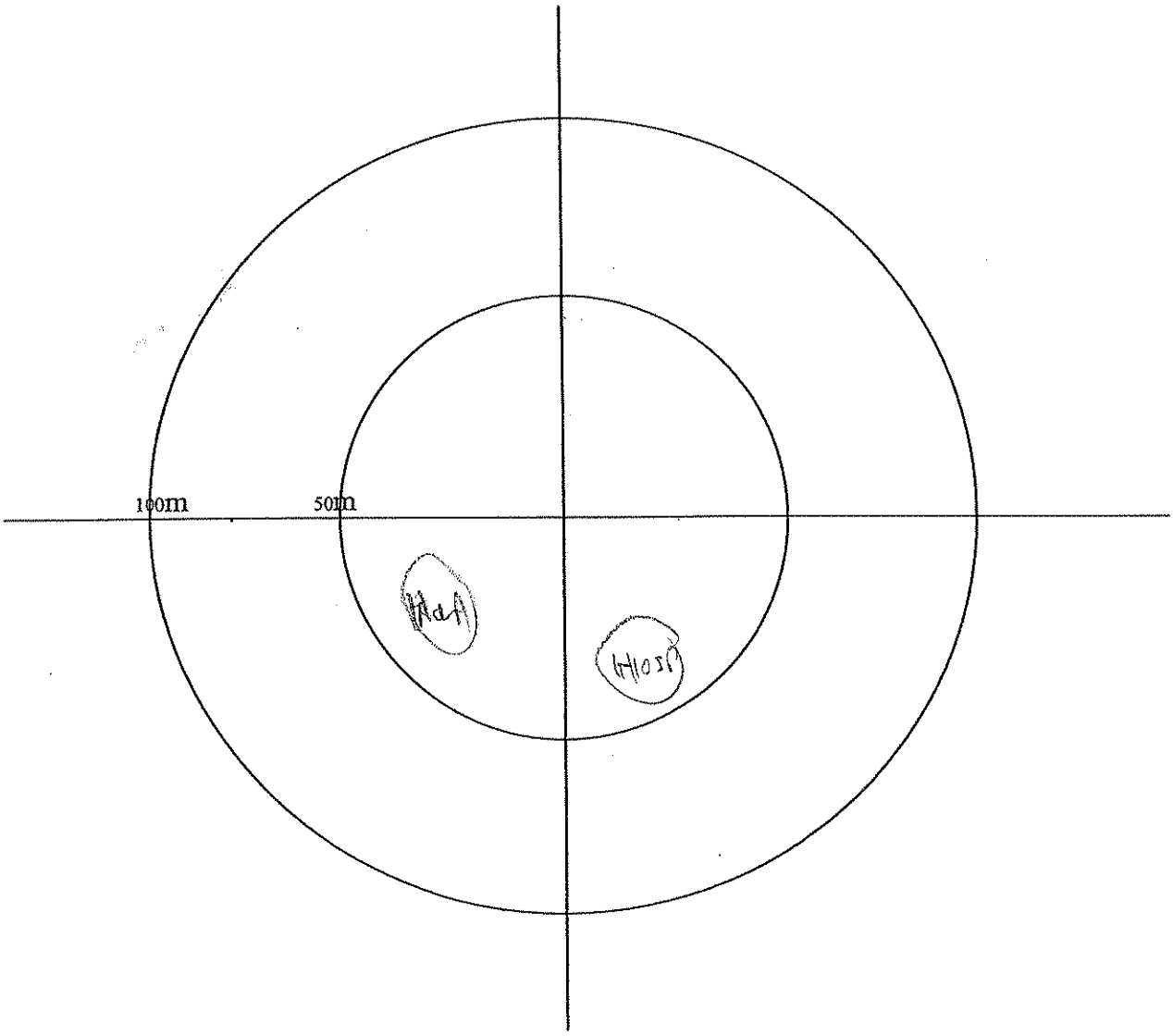
1 - BTH

2 - close to TH

3 - WBS

4 - WABS

Outside/Flythru
0-30



Point Count Data Form

Observer: [illegible]	Site: GES	Date: Oct. 30 08
Station ID: RF 17	Visit #: F 4	Start Time (HH:MM): 07:43
Beaufort Wind Scale: 1 NW	Cloud Cover (%): 0	Temperature (°C): ~2
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers	
Species	Tally

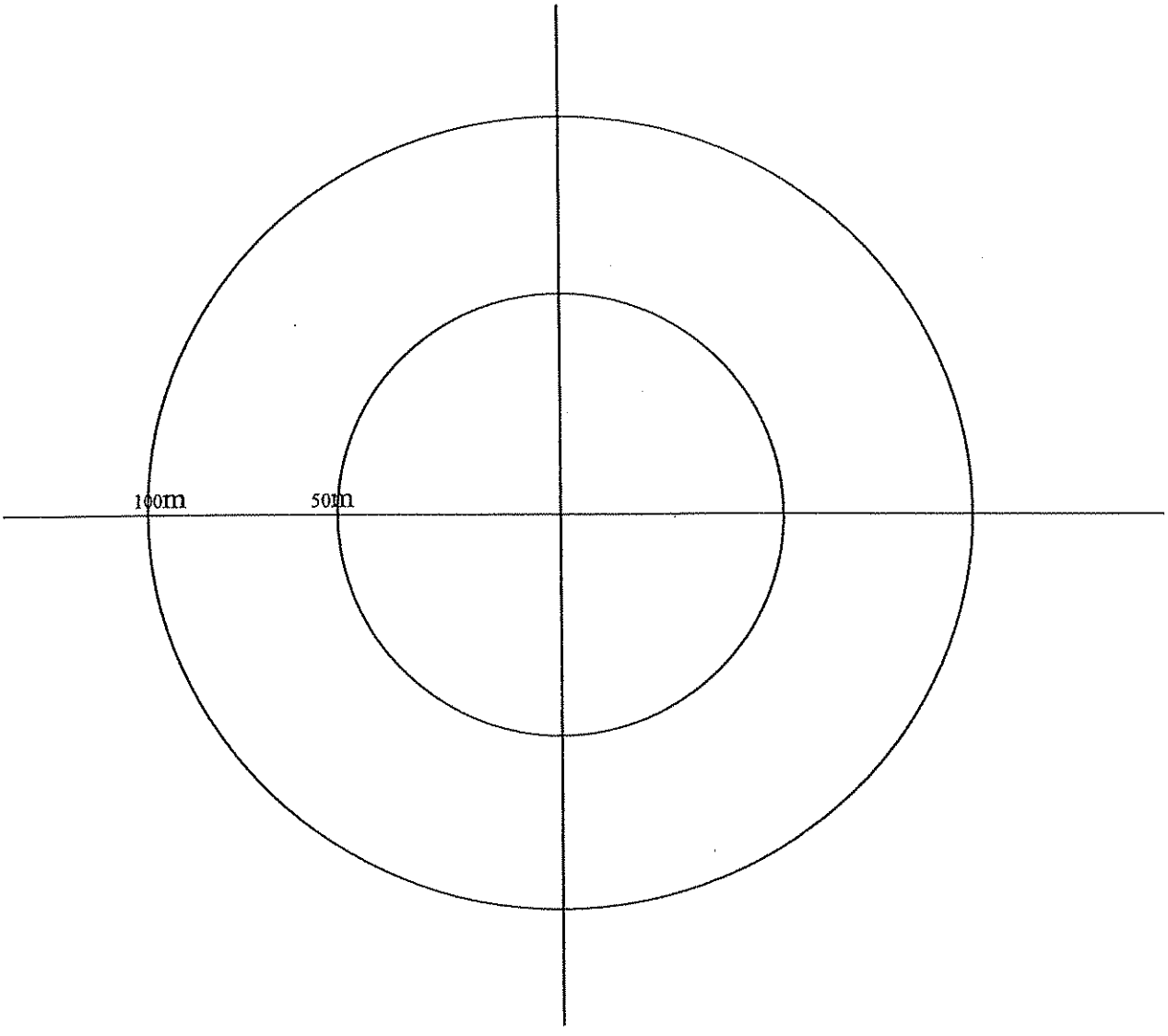
Symbols

- RWBL — Single bird, singing/calling
- RWBL → ← RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - W BS
4 - WA BS

Outside/Flythru
AMGO NW



Migration Monitoring

PROJECT SITE: GESNER

Date: 10/30/08

UTM:

Wind Direction SW

Station Number BAT02

Air Temp. 11

Wind Speed 32-3

Time 15:10

Precipitation —

Barometric Pressure

Observers Skm

Cloud Cover (%) 0

Elevation

Visibility clear

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
15:13	EUST	30	moving about field	A	50-100	NW
15:19	HOLA	40	moving about field; continuously below blade height			
15:20	RAGU	~60		A-B	50-100	W
		12	Flying S			

Height Zones: A=Within Blade Sphere, B=Close to Blade Sphere, C= Well Below Blade Sphere, D=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GESNER

Date: Oct 30 /09

UTM:

Wind Direction UNK

Station Number M1

Air Temp. 1

Wind Speed BL

Time 10:37

Precipitation —

Barometric Pressure

Observers Skr

Cloud Cover (%) 0

Elevation

Visibility close

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
10:31	RTHA	1	soaring over wood lot	B	200-500	N
10:45	HOLA	1	flying into field	A	0-50	NE
10:46	HOLA	3	flying NW	A	0-50	NE
10:50	BOEA	2	flying into field	D	50-100	NE
10:53	HOLA	2	in field, flew into field	A	0-50	NE
"	RTHA	1	flying SE	A	0-50	NE
11:00	BLBIRD	10	in field	A	200-400	NNW
11:08	COJA	40	flying W	A	0-50	S
11:12	BOEA	~40	one called loudly, could hear many others (and a Blue Jay) but will note only other movements	A	0-50	E
11:22	BLBIRD	6	flying W	A	0-50	W
11:27	"	20	flying W	A	50-100	S
11:31	"	30	flying E	B	200-500	E
"	RTHA	4	in field	A	50-200	N
11:36	CAGO	100	flying W	B	500	NE
11:40	AMCR	1	flying SW	B	200-500	SE
12:08	AMRO	3	flying W	A	0-50	W
12:11	RTHA		soaring	B-C	500-1000	N
"	AMCR	4	flying W	B	500-1000	N
"	TUVU	20	soaring	B-C	"	N
12:26	AMCR	30	flying W	B	1500	N
"	TUVU	26	soaring	B	>1000	

Height Zones: **A**=Within Blade Sphere, **B**=Close to Blade Sphere, **C**= Well Below Blade Sphere, **D**=Well Above Blade Sphere

Migration Monitoring

PROJECT SITE: GESNER

Date: 10/30/06

UTM:

Wind Direction B2-3-4

Station Number M1

Air Temp. 8

Wind Speed 5

Time 12:49

Precipitation —

Barometric Pressure

Observers SKM

Cloud Cover (%) 0

Elevation

Visibility clear

Time	Bird Species	# of Birds	Behaviour	Height (Zone A-D)	Dist. From Observer	Dir. from Observer
12:46	AMCR	2	flying N	A-B	200	E
12:51	EUST	11	flying W	A	0-50	N
12:59	TUVU	9	soaring W	B	500-1000	SW
"	BOBA	20 1	soaring W	B	"	NW
"	BLBIRD	20	flying ENE	B	"	NW
13:05	NOHA	1	soaring over field	A	200-500	N
13:07	RTHA	1	soaring W SE over woods	A-B	200-500	E
13:15	GBHE	1	flying USL	A	200-500	N
13:20	HOLA	25+7	flying over field	A	0-50	NW
13:24	EUST	5	in tree	A	0-50	

Height Zones: A=Within Blade Sphere, B=Close to Blade Sphere, C= Well Below Blade Sphere, D=Well Above Blade Sphere

GES – June 10/08

EAKE – P

CONUS 01 → same weather as normal

start @ 1450

@ FF4

AMCR – 3 SOSP

RUBL – 4

BRWS

RFG/CONUS 02

start @ 2005

ARBU HOLA

YKLN NOCA

KUBL BRWS – 2

CHKP SVSP – 2

NIGH/CONUS 03 start @ 2021

RBGS chokus Frog BOBO

SVSP – 2 EAKE – P

KUBL HOLA BRWS

FFA NET / CONTROL

Start @ 20:36
Temp → 22 Comfortable

KILL-2 MODO-1
SOSP-2
AMRO-1
YELVA
COGR
RURL - several

FFD / CONTROL Start @ 20:47
21°
HOLA → Flight Operations 35
YELVA
RURL
SOSP x2 20 42 Landed
IRNS Flying 5 laps

Incredible day
→ Carolina Chickadees!!

M2 / CONTROL Start @ 21:04
~30 o'clock 21°
KILL-2 AMRO ~6 SVSP
HOLA ~3 MODO NOCA

@ M2 on M1 Start @ 21:2

FFA5 on @ 21:29
same weather
4 LPL

M1 on → @ 21:43 ~20°

FFD @ 22:01 ~20° B1

FFA @ 22:16 ~ 18°
FFD on @ 22:31 19°
EASO heard calling in distance

GES US Search Run 1
Start @ 08:35 June 11/08

GRCA-2
KCVA
NCGA
RAUO voice call.
JAV. RTHA
RDUO-2 stream squirrel
REVS
EVPV
AMRO
YELA
DOVO
HOUR - Pair, singing, NB, several tones
top of hour stamp
BRCH
COGR
GRCA-2
ROVC-P Raccoon in tree
COGR-2

GES / June 11/08

FT 15 CONF clear b/l 15E ~25°C
Start @ 20:15
NOCA 3SSP
EVSP NOCA
COGR American Toad
AMRO MARSH-4 circling woodw
MOOO WOTA
BAOR CHSP
Blackbird + back ... read mo
BRWS =>4

VA-01 CONF
Start @ 20:29
MOOO BNKS AMCR
AMRO EVST SOSP
KSLL BRWS CHSP
Hourly RD.

FFT CONT @ 20:45

Hole Soup
Mag Kill
AMRO 16 W Waterfall Fly
SVSP S
LOCR

FFT Cont @ 21:01

CAR/MAL setup
NAR Cock AMRO
WOUND TRCK Fail
Cast York
Amer Car
Cr Dog
Oil @ 21:15

Mach tool / edge roach elk

FFT call @ 21:21
Subject
Arrow 16.2
AMRO Mine Unfortunately back
Heavy deer / rain Battery
Soup
Kill

FFT out @ 21:41
Hand Mine
Knife

FFT out @ 21:55
Fish Dog → Cat
Wood dog?

American Heart

Cafe - W2 Search

Start @ 07:10 - 08:20

RYHA SCAP

TWW

HCVK LAVI

CCPV

BCSA

INBW-empty

FAVG 3 Table

5 gaskings

PCVE x3 BCVA

LCKA VCVL

VCVP

HCVL RVSLP

SCEP LCCLP

RHA-Jw. finished Cafe work

RAL LAMA worked

Shipment

U1 Rad @ 07:58

YCVA-2 - 10:39

VCDV

CCCP

CVSP

CCVA

YCVP

CCLP

VCCV

TWW

CCVL x3

CCVA

1YCVA

YCVA-3

1FCVP

YCVA

ZNBW

BGGN

CVAL

Gesner

W3

Area Search

Start 08:36 – 0:15

~18°

B2 NE

0% cloud

no precip.

YEVA East. Chipmunk

VOTH

AMRO GRCA

BAOR BLJA

AMGO – ♂ RTHA

NOCA – 2 JNBH – 2♂

~~BHCO~~ NOFL

AMRO EAKI

RTHA

EUPW ||

HOUR – 3 a.c.

REVI

NOCA – P

RBWO

REVI ||

AMGO

BLJA

GESNER June 24 '08

CONT @ PF4

19:26

~25° C

B3 5

BAUS – 4 RUBL – 3 + 2 YEWA

SOSP COGR – 4

~ o ~

CONT @ PF12

~same weather

Start @ 19:41

SOSP RUBL

AMGO |||| VOTH

80 BLBI flying N @ B

+12

EUPW

HOLA

30 EUST || @ B

AMRO

NOW

CONT @ PF9

same weather

start @ 19:58

MODO || AMRO |||

RUBL – ~~||||~~ || HOLA

COGR – ~~||||~~ ~~||||~~ ~~||||~~ KILL

SOSP TRES

CONJ @ FF17

20:13

Temp near 23°

clear 10%

HOLA TNX NOCA

SOSP KILL

AMGO II COGR III

RUBL II

AMRO

Non

Raccoon + young raccoon
Rabbit

CONJ @ VIO3

Start @ 20:31 Temp ~23°

BHCO III BRNS IIII SOSP

COGR TNX II RUBL II WOFL

AMRO ~~WOFL~~ PUMA II

Non

CONJ @ FF5

Start @ 20:50 Temp 20

HOLA 3 NOCA NOLA-Flyg SOPA

AMRO II AMGO-II KELL

SOSP EUST-II murdered in

YELO EAST Creek

BBCU

OWL @ FF5

Start @ 21:16

GRCA BEWR

BHCO II

EUST-III

COGR II

Non

owl @ W3

Start @ 21:32

No Resp

GRCA COGR

YELO AMRO

Non

owl @ FF17

Start @ 21:49

Errors available in Correlator to NV
following SEAU PB

Non

owl @ FF9 Start @ 22:19

no wind

Owl @ FIL
Start @ 22:13

GASO clearly audible
in small loudest

Owl @ [redacted] NEO2
Start @ 22:47

NO N

U1
Start @ 06:45 - 08:20
Temp RE
BO-1

YCLA	EVPU	RDCD
SOSP	GRCA-P	WOTH
AMGO	SOSP	CHKU II
WOTH	YCLA-II	RCLA
YCLA IIII	BAOR	YCLA-II
AMGO-P	GRCA	EVPU
AMRO	DOWO	BBCU
LOGR-NIT	WOTH	YCLA
EVPU II	CHKU-P	N4BCOGR @
WOTH-P	HORI NKA	

U1
08:30 -
Temp NGR NO3°
EVPU HOWR
COOR
AMGR-3
REVI
BAOR
REVI
EVPU
DOWO
INIBW-NC
GRCA
DOWO
EVPU
HOWR
NOCA
HOWR

GEENER

Weather ~ 23°
BB-4 SSW
Overcast
v. light drizzle very drizzly

CONZ @ VE02

HOLA III Start @ 19:16
RBWO rain stopped natural
AZOL ~40 moving between trees
fields
AMRO
KILL
SWSP SOSP

CONZ @ FT1
start @ 14:33
no precip. conditions same otherwise

RWBL (several dozen blackbirds in field and marsh) ~100-300
SOSP II several large
KILL flocks converging
EAKI to roost
AMCR

CONZ @ TF15
start @ 19:51
no precip.

BRNS DLB2 flock ~ 50 yds in distance
TRES II
RBWO MODO
NOCA
CHSP
SOSP
SWSP - CF
AMRO - CF
BHCO
RWBL

~0~

CONZ @ VE01
start @ 20:06
no precip. wind now SE->

AMRO II CHSP
SOSP
KILL
CACR
HOLA-FD

GESNER June 25/08

OWL surveys

OWl @ FF1 Jww. RTHA seen along road
start @ 21:10

overcast
occ. v. light drizzle
~ 21°
0 2

~ o ~

start @ 21:29 OWle FF4
no precip.
~ 0 ~
SOSP
EUPU
2 barks obs. Forging along
woodlot edge

~ o ~

OWl @ FF15
no obs. occ. light drizzle
start @ 22:52

~ o ~

OWl @ VC01
start 23:13
dark, v. light drizzle

GESNER

Sept. 4/08

Woodlot 3 (N woodlot)

start search @ 07:52

BCCH

AMRC

BTCU

AMCO

NOCA

AMRC

BLJAY

AMRO

RCUE

LEFL

WOOD

DOWO

MAGU

Woodlot 1
start @ 09:41
~10:10

~30% clear
~20°
B | NW

AMCR
IWW 1111
CGWA 7
AMRO 2+1 (Lead Pair)
GRCA
BCCH
RBNU
AMCO
RTHA (Candidate)
EVPL
RBNU
OVEN
WAVI
NAWA
RBNU
BOWO

Woodlot 1
Start @ 10:45
Sun?
& Raccoons
WAVI
AMCR
GRCA 11
BTBW
AMRE
GRCA
RBNU
BTBW 11
RBNU
BTGW
AMRO
RBNU x2
BLWA

GESNER

Oct. 2 / 08

UI Search 08:30

09:30

BLUE

CAKE

TULIP

RED

~~RED~~ NOVA

HALO (Juv.)

DEVO

CCR

CEFIL

BEECH 4

YRUA

AMBER

GRECIA

NOVA

CHSP

BLUE 5

WASP 5

NOVA

W2 09:30 -

AMCR-5
RTHA

WBR 5 Monarch
RAVO
WRP 4
SCSP 1

W3 10:20 -
RBW 011
AMO 111
RLTP

Oct. 30/08 GESNER

Jeans

T-shirt

Socks

Underwear

9:00 → 09:10

BLUE

BLAZER

T-shirt

Jeans

Socks

Underwear

Shoes

10:05 - 10:35

METRO

BUSES

RIDE

BLAZER

DOWN

AMTS 5

GES Jan 7. 08

Weather → same as P.C.

ODWO
RBNH
very quiet
Inch of snow on all branches

15:00 15:30 woodlot 1/2 hour

15:45 - 16:15 WC?
OGJH
NOCH crossing road
rabbit
squirrel
No bird activity
Ct woodlot

GES - W / 03/09

S. Woodlot

13:20 - 14:00
clear skies
breeze
-8°C

rabbit tracks
AMCR

Juv. Golden eagle -> RTHA mobbing it.

DEER
Sm. mammals
Red Fox

NW Woodlot

14:45 - 14:35
Raptor Nest in middle of S
part of woodlot
open edge where field was

AMCR
Signs of fox chasing marten

N edge woodlot
14:45

2- RTHA

Raccoon
Squirrel
AMCR
evidence of woodpeckers

Hedgerow
1 - all woodlots will be wet in summer

GES- W3 03/13

Weather
→ same as earlier
→ clearing

WOODLOT #1

13:25 - 14:05

HAWO for
AMCR outside of woodlot
DOWO

WOODLOT #2

14:15 - 14:30

RTHA (calling in distance)

RBWO

Woodlot #3 14:45 - 15:15

BCCH - 2
RTHA
old stick nest on sedge
DOWO
AMCR

GES 04/24

08.22 - 08.57 L3
B2 SE
~10°C

Chorus Frog
NoCA 12
RuBL - 3 +2 in woods
BLJA
SUSP - 2
RBNU
SOSP - 2
Trilliums
Skunk Cabbage
AMGO x 2
CAGO LIFER
RBNU
DOVE

Wet woods
herb ich in dry areas
blackbirds + raccoons prints
Great Blue Heron flying over woods
Le possible heron ?
<sketch>

L1 9:08 - 09:31

same weather

AMRO
CAGO
RWBL - 5 +2 in vocalot
Cheeks Fords
RBWO
MODO
AMRO pair
RBWO in vocalot
Burgundy Trillium (?)
COGR - 3

Coho →

North in Grid while diving

09:36 L2

same weather

RWBL - 8 Chorus Frog
COGR - 2
HeLA
AMRO
CAGO
RWBL
TUVU - 2 roosting
RWBL N 6 in vocalot
AMGO
AMCR
Gust - 2
DEGR tracks
GCRT
BLJA
DOWO
SOSP pair
TRES

GESNER

U1 0745 0518 33
-08:22

RUBL - 4
AMRO
GRCA
TRES - 2
YEWA → 4 singing
RBGB - 3 of 17
-YEWA - 2
AMRE 0
COVE
WOTH
AMRO - 2
COWA
-YEWA
RBGR
4? WA?
RUBL
OVEN - 2
CAGO
COFR - 6
BAOR
GRCA
WOTH
NOPA! 0
RBGB - 2

Clearing ~12°

BCKI obs.

AMGO - 2
YEWA - 4
RUBL - 5

~~GRCA~~ ~~of Hylocichla?~~ GWPU

U2
08:25 - 08:55
in field / Lunch
COVE
CAGO - P 6 goslings on field

HOLA - 4
KILL
RUBL - 10

1/2 RUBL

RBLB x 2
YEWA
NOFL
RBWO
BLJA - 2
Vcan? - long rattle also call Wake Area
GCFL
RNBW - 2
NAWA
MODO
CAGO
SOSP - 3
MALL - P

Jack-in-the-pulpit

GRCA
AMRE 2
BAOR

U3

09:00-09:25

Notes

AMRD

VOTH

CRCA

VCUA

TRGS

FISP

RIGB ot

SOSP

VOCA

GRCA

WOTH

THVM

NOCA

BHCO

CAGG

BLJH

BTGL

BTDL

OVGN

BLWA

RBWO

DOVO

NOPA

COHA

Notes

mosquitoes

small holes hogwarts to talk

Notes

No.....

Date..... Page.....

Geismer Bat Monitoring

August 2 / 2005

Sites 1 & 2

Site 1 - Start @ 20:40

Mic 1 - 0°

Mic 2 - 90°

Mic 3 - 135°

Mic 4 - 270°

Site 2 - Start @ 21:05

No.....
Date..... Page.....

Spotlighting @ Site 2 1500 Geese
21:00 – 23:00

@ 21:49 → 1 bat ~ 20m high

Spotlighting @ Site 1
23:05 – 23:05

@ 23:20 1 bat
~10m up

Non

Temp. Dropped to 11°C
overnight

No.....
Date..... Page.....

Aug 2 Aug 3
Site 3
Start @ 20:40
Mic 1 → W

Site 1
Start @ 21:00
→ computer issues
Mic 1 S Temp 24°C
0% cloud cover

Spotlighting
Site 1 21:00-22:00
1 bat @ 21:40
bat @ 21:48

Temp Dropped to 17°C overnight

No.....

Date..... Page .....

905-923-5933

Adm

Aug 5

Site 3 V2

Start @ 20:26

~25°C

Mic A

Cloudy/O

Still

no precip

Mic1 -> V

Nor

Site 3 V2

Start @ 20:48

Same Location

Mic B

Mic1 -> V

No.....

Date..... Page.....

Aug 5/05

Bat Spotlighting

Site 3

20:45 - 21:45

Mic Switch

Site 3

21:50 - 22:15

No.....

Date..... Page.....

Notes this far

(1) No major but several minor obs.

(2) Obs. movements this far appear to [illegible] though this could be [illegible] detectable range

(3) Available [illegible] unlikely to be conducive to [illegible] but [illegible]

=> no water

=> no leads

=> [illegible] agricultural cells

= hedgerows.

(4) Fl appears as though getting [illegible] by [illegible] August will [illegible]

(5) Suggest changing [illegible] to [illegible]

No.....

Date..... Page.....

Overall, [illegible]

for [illegible]

but + [illegible]

scale

[illegible]

dole

[illegible]

N No.....

D Date..... Page.....

Aug 6 '08

(1) Site 1 - V3

(2) start @ 20:35

(3) mostly clear

→ no precip today

→ wind

→ still

→ slight breeze from W (SW)

Mic 1 → W Unit A

(4) Site 2 - V3

start @ 20:50

→ same weather

Mic 1 → W Unit B

(5) Site 2

Star lighting

dark 55 → 21:55

Unit B

No. .....

Date..... Page.....

Aug 7 '08

Notes: Setting ...

Title ...

20°C

~ 40% cloud

B F3

Mic 1 - 325°

no precip @ start

No.....
Date..... Page.....

Site 1 V4

setup @ 10:30 sky has cleared

(1) same weather

(2) mic 1 → W

(3) Spotlighting @ Site 2

23:15

sky was 100% clear

1, maybe 2 bats obs. @ Site

~2m off ground.

(4) opossum ran past me by v. odd [illegible]

• Spotlighting stopped @ 23:45 due to nearby lighting

(5) Mics pulled in @ midnight due to approaching storm.

No.....
Date..... Page.....

• Storm systematically moved NE

• Deployed storm @ 1930

No.....

Date..... Page.....

Aug. 8/08

Site 3 v3

Start @ 20:14

Mcl -> W

~22°

82 NW

0% cloud

n/a moon

Non

Site 1 v5

Start @ 20:37

rk 1 -> W

NON

Spotlighting @ Site 1

Start @ 20:50 - 21:50

hare 21:31

No.....

Date..... Page.....

Spotlighting @ Site 3

20:00 - 20:10

no sightings

No.....
Date..... Page.....

Aug 10 '08

Site 2 Start @ 20:52
→ ~30% cloud cover
→ cloud coming in S over hills
→ ~18°
→ Bi

Unit A Mic 1 →35°

Note: Started for S1.3 and but waiting until 21:30 to start so that the weather is dark.

S1.3 Set up @ 21:54
Unit B Mic 1 → 160°
Switched to set up as clouds moving slowly. Difficult to detect direction of movement
→ Hoping for the best!

No.....
Date..... Page.....

Spotlighting @ Site 3

2nd 23:30 - 23:30
Mic sighting
Sky beginning cleared by
Quad
Stars appear to be
moving in all the
directions

23:35 - 23:35

No.....

Date..... Page .....

Aug. 11 '06

Site 1 V6

Shade 20:44

Mic 1 -298° Unit A

220

154 N

0% clear cover

Site 3 V5

Start @ 21:15

Mic 1 - 198° Unit B

Spotlighting @ Site 3

21:15 - 22:15

Note: Creek in middle of

Spencer Field is heard [illegible]

[illegible]

No.....

Date..... Page .....

Aug. 12/06

Site 2 V6

Started @ 20:52

Temp 22-20

10% cloud

61 S

Mic 1 -> W Unit A

Site 3 V6

Start @ 20:47

Mic 1 -> 245° Unit B

Spotlighting 21:00 - 21:45

1 bat overhead @ 21:03

with Apex E towards NE

tower

2 bats overhead flying N

with up @ 21:14 towards

No.....

Date..... Page.....

Lhat arc creek by @ 21:21
then back marked.
→ still h. low

eyes pairs @ 21:21
eyes @ 21:23
eyes @ 21:23

appeared to be a lat flyby of
L. @ 21:32
Lcould possibly have been
a moth.

NOT
Spotlight type site)
21:50 – 22:30

Note: levels of shooting stars
became v. close & impressive

I have 21:50 around reaching water
"3, @ 21:57 into tree?

No.....

Date..... Page.....

have 22:00 → saw 1 off tree
possibly two I did. change
frame?

What saw her? multiple passes of
tree @ 21:21
Street possible Pasiphae?
occasional dots sources of bugs
& evidence of) by leaves
leaves

Pasiphae pass @ 22:03

21 back low out of veg around
tree, then spotlight @
about

No.....

Date..... Page .....

Aug. 8108

Site 1

Start @ 20:30

Mic 1 → 320° Unit B

~ 20°

Cloud → 30-40%

BD → 1 var. direction

Site 2

Start @ 20:47

Mic 1 - 295° Unit A

Spotlighting @ Site 2

21:30 - 22:10

no sightings

Spotlighting Site 1

22:15 - 22:55

no sightings

No.....

Date..... Page.....

Aug 14/08

Site 3 VJ

Start @ 20:19

Unit A

Mic 1 → 165°

~ 24°

Cloud ~ 5%

BD ~

Site 1 VJ

Start @ 20:42

Mic 1 → 330°

Spotlighting Site 1

21:00 - 21:40

1 bat overhead.

Flying NE @ dusk

~ 10+ other years

1 bat @ 21:00, over carpark then

1 bat hunting several times passes

over roadway @ 21:18.

No.....
Date..... Page .....

1 bat waiting passes over
tail @ 21:23

NON
Spotlighting @ Site 3
21:48 - 22:28

1 bat @ 21:49
→ traveling Westerly Hedgerow
→ low

1 bat @ 21:56
Low overhead then in
Occ field
→ v. low

1 bat @ 22:01
→ same as 1st

No.....
Date..... Page.....

Aug 15 '18

Site 3 VK
Start @ 20:33
Unit B
~23°
0% cloud
BI NW
MC 7 = 140°

NON
Site 2 VK
Start @ 20:48
Unit A
MC 1 → 15°

No.....
Date..... Page.....

Aug 18 10th

Site 2 V9
Start @ 20:28
~26°C
84 kW
Mic 1 - 0°
Unit A

@ Site 2
*** CWR for dancing Stayner
set to take
V03

Site 1 V9 Start @ 20:43
Mic 1 - 330° Unit D

Spotlighting Site 1
20:50 - 21:30

21:01
→ boat pass directly overhead,
startling ∈ UK m yp.
Spotlighting abandoned @ 21:10 to stem

No.....
Date..... Page.....

@ Site 2

Several boat passes made around reaching the

Large concentration of insects visible around deep

Heavy insect
Tie 21:15

No.....

Date..... Page.....

Aug. 19/05

Site 3 V4

shot @ 20:31

Mic 1 145°

Unit B

Site 1 V10

Unit A

shot @ 20:45

Mic 1 110°

N 22°, 37:11, 0% cloud

van

Spotlighting @ site 1

20:50 - 21:30

1 bat, directly over trail @ dusk

b staying & foraging over trail

for 1-2 min.

→ bat remains present @

20:54 → 2-4 min ea

No.....

Date..... Page.....

bat flies @ dusk SW, staying over trail

→ still present @ 21:04 ea

→ bat returned @ 21:06

Spotlighting @ site 3

21:35 - 21:45

No.....

Date..... Page.....

Aug 20 '08

Site 3 V10

Start @ 20:29

Nic 1 → 120

Lot B ~10% c.c.

180

still (B) (L)

Site 2 V10

Start @ 20:42

Lot A Nic 1 → 140

No.....

Date..... Page.....

Aug 21 '08

Woodlot Area Search

V3 07:10 - 08:55

Nymph

0% c.c.

still

NOFL 11

CHSP 11

CLPW 11

BLUJA 11

AMRO 111

LOTH

RBGR 11

=primary activity @ woodlot edge

V1 08:05 - 09:00

NOFL RBGR

GRCA 1111 CLPW

SOSP 11 CBGR 11

CEDA 11

AMRO 111

No.....

Date..... Page .....

Aug 22/08

Unit B → cannot drop Hard Driv.
This Blank!

Unit A @ Site 1
Start @ 20:10
Mic 1 → 60°
Temp 25°
Cloud 30%
Wind B3-4 E

→ no spotlighting work

No.....

Date..... Page.....

Aug 25/08

Site 3 VH
Start @ 20:40
Mic 1 → 115°
Unit A
22 h)
WIND
0% cloud

Site 2 VH
Start @ 20:56
Mic 1 → 150°

No.....

Date..... Page .....

Aug 26/08

Site 2 V12

Start @ 20:18

Temp 19°C

Cloud ~5%

103 E

Mic 1 → 354°

Unit A

Site 1 V12

Unit B

mic 1 → 60°

start @ 20:32

Spotlighting @ Site 1

20:35 - 21:15

- flock of geese audible in distance to N

no sightings

No.....

Date..... Page.....

Spotlighting @ Site 1

21:30 - 22:00

at least

dozens - 2 bats with distance feeding

several passes

→ appear to be following similar path & be both Pipistrelle

→ these bats appear to be concentrated around the

edge of small willow

→ noticing several passes along

tree / shrubs.

→ all obs recorded below

bldg height ~20m

without bat detector

No.....
Date..... Page.....

Aug 27 '08

Site 3 V12
Start @ 20:35
Mic 1 ~110°
Temp ~20°C
B1-2, SE
~80% c.c.

Unit A

Site 1 V13
Start @ 20:42
Mic 1 → 340°
Non
Spotlighting @ Site 1
20:40-21:20

1 bat pass @ 21:00, moving
SE
~10 yr.

No.....
Date..... Page.....

Spotlighting @ Site 3
~20:40-22:10

~Non~

Aug 28/08

Site 3 V12 a
Start @ 20:29
Mic 1 ~100°
Temp ~20° Unit B
Still
100% cloud, fog forming

Site 1 V13 a
Start @ 20:39
Mic 1 → N

Non Spotlighting

No.....

Date..... Page .....

Aug 29/08

Site 3 V13

Start @ 20:27

Mic1 - 150°

B1 S (mostly still)

Temp 26°

cloud 50%

light foggy in distance

Site 2 V13

start @ 20:40

Mic1 315°

(1) Call Wade

(2) Call Rachael

No.....

Date..... Page .....

Sept. 3/08

Site 1 V14

Start @ 20:00

Mic1 → 320°

B3/4/5 NW

27°

100% cloud

chance of rain in forecast

Site 2 V14

Start @ 20:13

Mic1 → 320°

spotlighting @ Site 2

Start @ 20:15

No.....
Date..... Page.....

Sept 7 '08

Mic 1 - 040°

Site 3 Wind SW 5V

VHF Temp 20°

Cloud 5% ; mainly clear

Unit B

Start @ 19:54

Set to start @ 20:15

Site 1 V15

Start @ 20:10

Unit A

Mic 1 -> 35°

Spotlighting @ Site 1

Start @ 20:15 - 20:55

20:39 1 bat pass. Flying 5 ~ 10m up.

No.....
Date..... Page.....

Spotlighting @ Site 3

Start @ 20:54 - 21:34

no sightings

Sept. 9 '08

Site 2 V15

Start @ 19:58

Unit A

Mic 1 -> 20°

Bliz NW

Temp 16°

Cloud 5%

Note: Field gloves this time last visit.

Site 3 V15

Start @ 20:10

Mic 1 -> 255°

No.....

Date..... Page .....

Spotlighting @ Site 3

20:10-20:50

20:19 → 9 cargo flying S

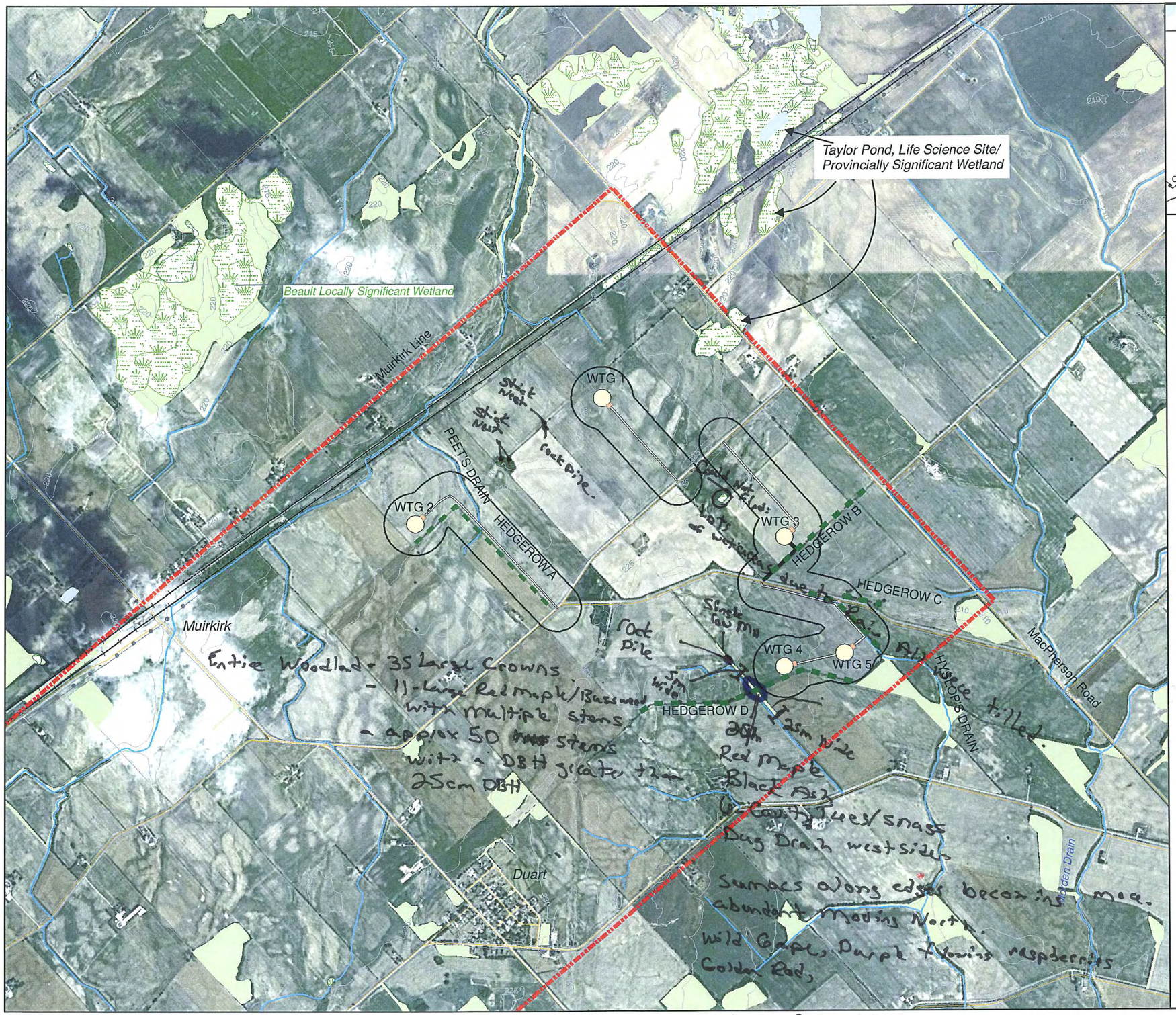
no sighting

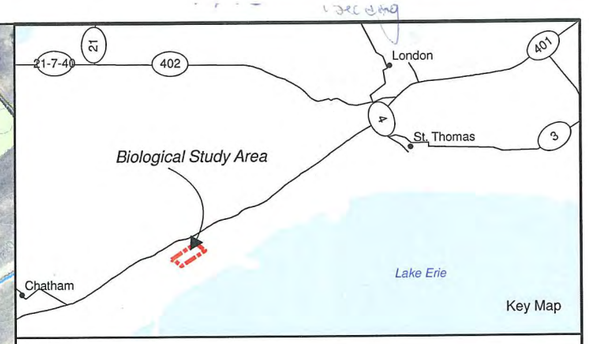
Spotlighting @ Site 1

20:35-21:35

20:35 → 1 bat past, flying W

~10m away





Legend

Project Components

- Wind Turbine (90m Diameter)
- Crane Pad
- Access Rd (9m Width)
- Interconnection Cabling (5m Width)
- 120m Setback From Project Components

- Biological Study Area
- Wetlands
- Woodland
- Hedgerow

Notes:
1. Base data downloaded from www.geographynetwork.ca NRVIS data from MNR LIO.
2. Spatial referencing UTM NAD 83
3. Satellite imagery from Google Earth Pro.

0 125 250 500 Metres

1:20,000

NORTH

Figure 4.1
Saturn Power Inc.
Gesner Wind Energy Project
Project Location in Relation to Natural Features

HATCH

P:\SATURN\328628\GIS\Local Significant Enviro_infrastructure.mxd

May 5, 2011 - Gesner.

Start time: 10:00 am.
End time: 10:30 am

Weather: Sunny, clear
~ 12°C.
Bz.
No snakes found.

May 11/11

Gesner - Hedgpeth Investigation
TF 15km

25°C
B2
100% c c

13:54 start

No standing holler trees observed within woodland

Several snags on ground

Appendix H

Natural Heritage Assessment and Environmental Impact Study Report

HATCH™

Saturn Power Inc.

Natural Heritage Assessment and Environmental Impact Study Report

Gesner Wind Energy Project

H328628-0000-07-124-0006
Rev. 1
May 13, 2011

Project Report

May 13, 2011

Saturn Power Inc.
Gesner Wind Energy Project

Natural Heritage Assessment Report

Table of Contents

List of Tables

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1. Introduction

Saturn Power Inc. ("Saturn") is proposing to build a 10-megawatt (MW) wind energy project southeast of Highgate, in the Municipality of Chatham-Kent, in southwestern Ontario. The wind project will be located approximately 10 km inland from the northwestern shore of Lake Erie. The 10-MW project will consist of five 2-MW wind turbine generators (WTGs) (see Figure 1.1).

As stated in Section 24 of Ontario Regulation (O. Reg.) 359/09 *Renewable Energy Approvals Under Part V.0.1 of the Act*, (herein referred to as the "REA Regulation"), the proponent of a renewable energy project is required to complete a Natural Heritage Assessment (NHA). Further, if the Project location is on or within a specified setback of a significant natural heritage feature, an Environment Environmental Impact Study (EIS) completed in accordance with Section 38 of the REA Regulation is required in order to obtain a Renewable Energy Approval (REA).

This report is completed with the intention of satisfying the requirements of the NHA requirements of the REA Regulation.

1.1 Project Location

The Project location is southeast of the Highgate community within the Municipality of Chatham-Kent and east of the smaller hamlets of Duart and Muirkirk. The leased land for the Project covers a total area of approximately 233 ha.

Figure 1.1 illustrates the Project location, showing turbine locations and access roads. Interconnection cabling will be located beneath the access roads shown in Figure 1.1.

The geographic coordinates (NAD 83) of turbines locations are listed below.

Turbine No. 1	**4708431 m N,**	**438829 m E**
Turbine No. 2	**4707719 m N,**	**437817 m E**
Turbine No. 3	**4707807 m N,**	**439471 m E**
Turbine No. 4	**4706936 m N,**	**439609 m E**
Turbine No. 5	**4708140 m N,**	**438448 m E**

Upgrades to the existing distribution network may be required for the Project, however this is not considered part of the Project as work will ultimately be completed by Hydro One Networks Inc. (HONI), who will also retain ownership of the distribution line. As a result, any work required will be completed as part of HONI's approval process.

There is no laydown area required for the Project; materials will be delivered to site as they are ready for use.

1.2 Renewable Energy Approval Legislative Requirements

As per Section 6 of the REA Regulation, wind facilities, at a location where no part of a wind turbine is located in direct contact with surface water other than a wetland, with a nameplate capacity of ≥50 kW, and a greatest sound power level of <102 dBA, such as those proposed by Saturn, are classified as Class 3 wind facilities.

The REA process requires the completion of several reports with respect to natural heritage features on and within 120 m of the Project location, including the Records Review, Site Investigation, Evaluation of Significance, and if necessary, the EIS. The legislative requirements for these reports, from the REA Regulation, are summarized in the following sections.

1.2.1 Records Review

Section 35 of the REA Regulation requires proponents of Class 3 wind facilities to undertake a natural heritage records review to identify "whether the project is

1. in a natural feature
2. within 50 m of an area of natural and scientific interest (earth science)
3. within 120 m of a natural feature that is not an area of natural or scientific interest (earth science). (O. Reg. 359/09, s. 25, Table).

Natural Features are defined in Section 1.1 of the REA Regulation to be all or part of

- an area of natural and scientific interest (ANSI) (earth science)
- an ANSI (life science)
- a coastal wetland
- a northern wetland
- a southern wetland
- a valleyland
- a wildlife habitat, or
- a woodland.

The Natural Heritage Records Review is provided within Section 2 of this report.

1.2.2 Site Investigation

Section 26 of the REA Regulation requires proponents of Class 3 wind facilities to undertake a natural heritage site investigation for the purpose of determining

- whether the results of the analysis summarized in the (natural heritage records review) report prepared under Subsection 25 (3) are correct or require correction, and identifying any required corrections
- whether any additional natural features exist, other than those that were identified in the (natural heritage records review) report prepared under Subsection 30 (2)
- the boundaries, located within 120 m of the Project location, of any natural feature that was identified in the records review or the site investigation; and
- the distance from the Project location to the boundaries determined under clause (c).

The Natural Heritage Site Investigation is provided within Section 3 of this report.

Taylor Pond, Life Science Site/
Provincially Significant Wetland

Muirkirk Line

Rock Pile 1

WTG 1

WTG 5

WTG 2

WTG 3

WTG 4

HEDGEROW B

PEETS DRAIN

HEDGEROW A

Gesner Line

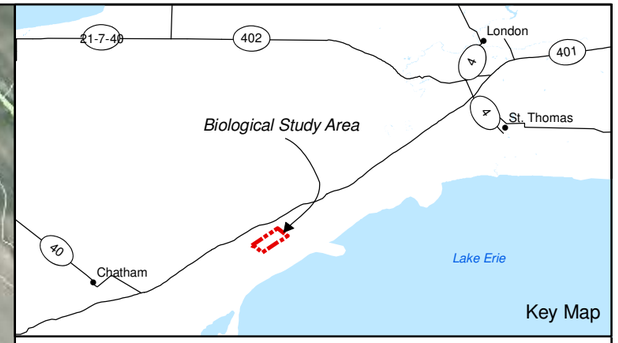
Sweitzer Line

MacPherson Road

HEDGEROW D

HEDGEROW C

Rock Pile 2



Legend

Project Components

- Wind Turbines (110 m Diameter)
- Crane Pad
- Access Road (9 m Width)
- 120 m from Project Components

Natural Features

- Biological Study Area
- Wetlands
- Woodland
- Hedgerow

Notes:
1. Base data downloaded from www.geographynetwork.ca
NRVIS data from MNR LIO.
2. Spatial referencing UTM NAD 83
3. Satellite imagery from Google Earth Pro.

0 50 100 200
Metres
1:10,000

NORTH

Figure 1.1
Saturn Power Inc.
Gesner Wind Energy Project
Project Location in Relation to Natural Features

HATCH

P:\SATURN\328628\GIS\Turbinelocations_29Apr11.mxd

Back Figure 1.1

1.2.3 Evaluation of Significance

Section 27.(1) of the REA Regulation requires proponents of Class 3 wind facilities to undertake an evaluation of significance report for natural heritage features identified during the records review and site investigation that sets out

- a determination of whether the natural feature is
  - provincially significant
  - significant
  - not significant
  - not provincially significant
- a summary of the evaluation criteria or procedures used to make the determinations
- the name and qualifications of any person who applied to evaluation criteria or procedures.

The Evaluation of Significance is provided within Section 4 of this report.

2. Records Review

This section documents the records that were searched and analyzed and the results of the analysis, with the focus on identifying whether or not the Project was located on or within 120 m of any of the natural features listed in Section 1.2.1.

Records that were reviewed are identified in Table 2.1.

There are no planning boards, municipal planning authorities, local roads boards or local services boards within the jurisdiction of the Project site. Also, the Project site is not located within the Niagara Escarpment Commission Plan Area. Therefore, records review for these governing bodies was not conducted.

Table 2.1 Natural Heritage Records Reviewed

Organization	Individual Contacted/ Information Source	Records Searched	Relevant Reports Sections
Federal Government			
Natural Resources Canada	Amphibians and Reptiles of Ontario (McKenney et al. 2007)	Climate domain maps of amphibians and reptiles within the province of Ontario.	Table 2.2 identifies those species whose ranges overlap that of the Project location. Of these species, four were identified as species of conservation concern: • Snapping Turtle • Northern Map Turtle • Eastern Milksnake • Eastern Ribbonsnake. These observations are discussed further in Section 2.1.
Government of Canada	Species at Risk Registry Geographic Query	The geographic query was used to determine what federal species of conservation concern may be found within the Project site.	No species of conservation concern beyond those previously discussed were identified.
Provincial Government			
Ministry of Natural Resources	Land Information Ontario	Ontario Base Maps were reviewed for natural features on or within 120 m of the Project location, including woodlands, wetlands, and stick nests/deer wintering areas.	No valleylands, stick nests or deer wintering areas were identified on or within 120 m of the Project location. Small areas of wetland and a narrow woodland were identified within 120 m of the Project location. Site investigations will be required to determine whether these features exist.
	Natural Heritage Information Centre (NHIC, 2008 a and b)	The NHIC geographic query tool and species search tool were used to identify known occurrences of species of conservation concern or other natural features (such as Areas of Natural and Scientific Interest (ANSI) and significant wetlands.	No records of species of conservation concern, ANSI, or wetlands were identified from on or within 120 m of the Project location. Occurrences of Eastern Milksnake, a species of conservation concern were noted from the general region. These observations are discussed further in Section 2.1.

Organization	Individual Contacted/ Information Source	Records Searched	Relevant Reports Sections
Conservation Authority			
Lower Thames Valley Conservation Authority	Lower Thames Valley Conservation Authority Website	Website was reviewed for any information relating to natural features.	No additional information was found.
Municipality			
Municipality of Chatham-Kent	Official Plan	The official plan of the Municipality of Chatham-Kent was reviewed for information relating to natural features.	No natural features were identified within 120 m of the Project location on the mapping.
Municipality of West Elgin	Official Plan	The official plan of the Municipality of West Elgin was reviewed for information relating to natural features.	No additional information was found.
Other Sources of information			
Ontario Breeding Bird Atlas	Results of the 2001 - 2005 Breeding Bird Atlas	Atlas results for survey squares 17MH30 and 17MH31 were reviewed to provide background information on bird populations in the area.	Table 2.3 identifies those species whose ranges overlap that of the Project location. Of these species, six were identified as species of conservation concern: • Bald Eagle • Common Nighthawk • Red-headed Woodpecker • Carolina Wren • White-eyed Vireo • Canada Warbler. These observations are discussed further in Section 2.1.
Atlas of the Mammals of Ontario	Atlas records	The atlas was reviewed for information on mammals that may be found within the study area.	Table 2.2 identifies those species whose ranges overlap that of the Project location. Of these species, three were identified as species of conservation concern: • Northern Long-eared Bat • Small-footed Bat • Eastern Pipistrelle. These observations are discussed further in Section 2.1.
Important Bird Areas of Canada	Important Bird Areas of Canada Website	The website was reviewed for information relating to important bird areas in the vicinity of the study area.	No important bird areas are identified on or within 120 m of the Project location.

Blank back

Table 2.2 Reptiles and Amphibians Potentially Occurring on or within 120 m of the Project Location and their Conservation Status[1]

Species		Conservation Status[2]						Observed[9]
Common Name	Scientific Name	Ontario			Canada			
		SRANK[3]	COSSARO[4]	ESA[5]	NRANK[6]	COSEWIC[7]	SARA[8]	
Salamanders								
Mudpuppy	*Necturus maculosus*	S4	NAR		N4	NAR		
Blue-spotted Salamander	*Ambystoma laterale*	S4			N5			
Yellow-spotted Salamander	*Ambystoma maculatum*	S4			N5			
Four-toed Salamander	*Hemidactylium scutatum*	S4	NAR		N4	NAR		
Eastern Red-backed Salamander	*Plethodon cinereus*	S5			N5			
Eastern Newt	*Notophthalmus viridescens*	S5			N5			
Frogs and Toads								
American Toad	*Bufo americanus*	S5			N5			
Fowler's Toad	*Bufo fowleri*	S2	END	END	N2	THR	THR	
Gray Treefrog	*Hyla versicolor*	S5			N5			
Spring Peeper	*Pseudacris crucifer*	S5			N5			
Western Chorus Frog	*Pseudacris triseriata triseriata*	S4	NAR		N5	NAR		
American Bullfrog	*Rana castebiana*	S4			N5			
Green Frog	*Rana clamitans*	S5			N5			
Pickerel Frog	*Rana palustris*	S4	NAR		N5	NAR		
Northern Leopard Frog	*Rana pipiens*	S5	NAR		N5	NAR		
Mink Frog	*Rana septentrionalis*	S5			N5			
Wood Frog	*Rana sylvatica*	S5			N5			
Turtles								
Spiny Softshell	*Apalone spinifera*	S3	THR	THR	N2	THR	THR	
Snapping Turtle	*Chelydra serpentina*	S5	SC	SC	N5	SC		
Midland Painted Turtle	*Chrysemys picta marginata*	S5			N5			
Spotted Turtle	*Clemmys guttata*	Sensitive Species – no ranking provided		END	Sensitive Species – no ranking provided		END	
Blanding's Turtle	*Emydoidea blandingi*	S3	THR	THR	N4	THR	THR	
Wood Turtle	*Glyptemys insculpta*	Sensitive Species – no ranking provided		END	Sensitive Species – no ranking provided		SC (3)	

Species		Conservation Status[2]						Observed[9]
Common Name	Scientific Name	Ontario			Canada			
		SRANK[3]	COSSARO[4]	ESA[5]	NRANK[6]	COSEWIC[7]	SARA[8]	
Northern Map Turtle	*Graptemys geographica*	S3	SC	SC	N4	SC	SC	
Eastern Box Turtle	*Terrapene carolina*	SU			NE			
Red-eared Slider	*Trachemys scripta elegans*	SE			NE			
Lizards								
Five-lined Skink	*Eumeces fasciatus*	S3	END	END	N3	SC	SC (3)	
Snakes								
Northern Ring-necked Snake	*Diadophis punctatus edwardsii*	S4			N5			
Eastern Foxsnake	*Elaphe gloydi*	S3	END	END	N3	END	THR	
Eastern Hog-nosed Snake	*Heterodon platirhinos*	S3	THR	THR	N3	THR	THR	
Eastern Milksnake	*Lampropeltis triangulum*	S3	SC	SC	N5	SC	SC	
Northern Watersnake	*Nerodia sipedon sipedon*	S5	NAR		N5	NAR		
Smooth Green Snake	*Opheodrys vernalis*	S4			N5			
Queen Snake	*Regina septemvittata*	S2	END	END	N5	THR	THR	
Dekay's Brownsnake	*Storeria dekayi*	S5	NAR		N5	NAR		
Red-bellied Snake	*Storeria occipitomaculata*	S5			N5			
Eastern Ribbonsnake	*Thamnophis sauritus*	S3	SC	SC	N4	SC	SC	
Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	S5			N5			

1 As determined from potential climatic domain maps in McKenney et al (2007) and range maps provided in Oldham and Weller (2000).
2 Accessed from NHIC, 2008b
3 SRANK = Provincial Status; S= Sub-national Rank (Ontario), 2 = Imperilled, 3 = Vulnerable, 4 = Apparently Secure, 5 = Secure, E = Exotic, U = Unknown
4 COSSARO = Committee on the Status of Species at Risk in Ontario; NAR = Not at Risk, SC = Special Concern, THR = Threatened.
5 ESA = Ontario Endangered Species Act, 2007; SC = Special Concern, THR = Threatened, END = Endangered.
6 NRANK = National Status (NatureServe (www.natureserve.org), in conjunction with Conservation Data Centres, such as NHIC); N = National Rank (Canada), 2 = Imperilled, 3 = Vulnerable, 4 = Apparently Secure, 5 = Secure, E = Exotic,
7 COSEWIC = Committee on the Status of Endangered Wildlife in Canada; NAR = Not at Risk
8 SARA = Species at Risk Act – Canada; SC = Special Concern, THR = Threatened, END = Endangered (on Schedule 1); SC (3) = Special Concern (on Schedule 3)
9 During 2008 site visits

Table 2.3 Birds Potentially Occurring on or within 120 m of the Project Location and their Conservation Status[1]

Species		Conservation Status[2]							Observed		
Common Name	Scientific Name	Partners In Flight Priority Species	Ontario			Canada			Ontario Breeding Bird Atlas Results 2001-2005[9]		2008 Site Visits
			SRANK[3]	COSSARO[4]	ESA[5]	NRANK[6]	COSEWIC[7]	SARA[8]	17MH30	17MH31	
Loons											
Common Loon	*Gavia immer*		S4B	NAR		N5B,N5N	NAR				√
Grebes											
Pied-billed Grebe	*Podilymbus podiceps*		S4B, SZN			N5B,N5N			FY		
Cormorants											
Double-crested Cormorant	*Phalacrocorax auritus*		S4B, SZN	NAR		N5B,N5N	NAR				
Herons, Egrets and Bitterns											
American Bittern	*Botaurus lentiginosus*		S4B, SZN			N4B,N3?N					√
Least Bittern	*Ixobrychus exilis*		S3B, SZN	THR	THR	N3B, NZN	THR	THR	T		
Great Blue Heron	*Ardea herodias*		S5B, SZN			N5B,NZN			NU	H	√
Great Egret	*Casmerodius albus*		S2B, SZN			N2B,NZN					
Green Heron	*Butorides virescens*		S4B, SZN			N4B,NZN			A	FY	
Black-crowned Night-Heron	*Nycticorax nycticorax*		S3B, SZN			N5B,NZN					
Swans											
Tundra Swan	*Cygnus columbianus*		N3N, N5B			S3B					√
Mute Swan	*Cygnus olor*		SE			NE					
Geese											
Canada Goose	*Branta canadensis*		S5B, SZN			N5B,N5N			FY	FY	√
Ducks											
Wood Duck	*Aix sponsa*		S5B, SZN			NZN,N5B			FY	FY	√
Gadwall	*Anas strepera*		S4B, SZN			N5B,N?N					
American Wigeon	*Anas americana*		S4B, SZN			N5B,N?N					
Northern Shoveler	*Anas clypeata*		S4B, SZN			N5B,NZN					
American Black Duck	*Anas rubripes*		S5B, SZN			N4B,N?N					
Mallard	*Anas platyrhynchos*		S5B, SZN			N5B,N5N			P	FY	
Blue-winged Teal	*Anas discors*		S5B, SZN			N5B,NZN			P		
Green-winged Teal	*Anas crecca*		S4B, SZN			N5B,N5ZN					√
Redhead	*Aythya americana*		S2B, SZN			N2N3N,N5B					
Hooded Merganser	*Lophodytes cucullatus*		S5B, SZN			N5B,N5N			FY		
Ruddy Duck	*Oxyura jamaicensis*		S2B, SZN			N5B,N5N					
Vultures											
Turkey Vulture	*Cathartes aura*		S4B, SZN			N4N5B,NZN			T	T	√
Hawks and Eagles											
Sharp-shinned Hawk	*Accipiter striatus*		S5B, SZN	NAR		N5B,NZN	NAR		H	CF	√
Cooper's Hawk	*Accipiter cooperii*		S4B, SZN	NAR		N4B,N4N	NAR		CF	CF	√
Northern Harrier	*Circus cyaneus*	√	S4B, SZN	NAR		N5B,N4N	NAR		H	CF	
Broad-winged Hawk	*Buteo platypterus*		S5B, SZN			N5B,NZN			A	H	√
Red-tailed Hawk	*Buteo jamaicensis*		S5B, SZN	NAR		N5B,NZN	NAR		A	A	√
Rough-Legged Hawk	*Buteo lagopus*		S1B	NAR		N4N,N5B	NAR				√
Bald Eagle	*Haliaeetus leucocephalus*	√	S4B, SZN	SC	SC	N4B,N4N	NAR		NY		
Golden Eagle	*Aquila chrysaetos*		S1B	END	END	N5B,N5N	NAR				√

Table 2.3 Birds Potentially Occurring on or within 120 m of the Project Location and their Conservation Status[1]

Species		Conservation Status[2]							Observed		
Common Name	Scientific Name	Partners In Flight Priority Species	Ontario			Canada			Ontario Breeding Bird Atlas Results 2001-2005[9]		2008 Site Visits
			SRANK[3]	COSSARO[4]	ESA[5]	NRANK[6]	COSEWIC[7]	SARA[8]	17MH30	17MH31	
Falcons											
Merlin	*Falco columbarius*		S4B	NAR		N4N5N,N5B	NAR				√
American Kestrel	*Falco sparverius*	√	S5B, SZN			N5B,N5N			FY	FY	√
Upland Game Birds											
Ring-necked Pheasant	*Phasianus colchicus*		SE			NE					√
Ruffed Grouse	*Bonasa umbellus*		S5			N5				T	
Wild Turkey	*Melagris gallopavo*		S4			N3N4			FY	NE	√
Northern Bobwhite	*Colinus virginianus*	√	S1S2	END	END	N1N2	END	END			
Gruiformes											
American Coot	*Fulica americana*		S4B, SZN	NAR		N5B,NZN	NAR				
Common Moorhen	*Gallinula chloropus*		S4B, SZN			N3N4B					
King Rail	*Rallus elegans*		S2B, SZN	END	END	N2B	END	END			
Virginia Rail	*Rallus limicola*		S4B, SZN			N5B,N?N					
Sora	*Porzana carolina*		S4B, SZN			N5B,N?N			P		
Sandhill Crane	*Grus canadensis*		S4B, SZN			N5B					
Plovers											
Killdeer	*Charadrius vociferus*		S5B, SZN			N5B,NZN			FY	FY	√
Sandpipers and Phalaropes											
Spotted Sandpiper	*Actitis macularia*		S5B, SZN			N5B,NZN			H	FY	
Upland Sandpiper	*Bartramia longicauda*		S4B, SZN			N5B			AE		√
American Woodcock	*Scolopax minor*		S5B, SZN			N5B,NZN			S		
Common Snipe	*Gallinago gallinago*		S5B, SZN			N5B,NZN					
Gulls											
Ring-billed Gull	*Larus delawarensis*		S5B, SZN			N5B,N5N					√
Herring Gull	*Larus argentatus*		S5B, SZN			N5B,N5N					
Terns											
Common Tern	*Sterna hirundo*		S4B, SZN	NAR		N5B,NZN	NAR				
Forster's Tern	*Sterna forsteri*		S2S3B, SZN			N4N5B,NZN					
Black Tern	*Chlidonias niger*		S3B, SZN	SC	SC	N4B,NZN	NAR				
Doves											
Rock Dove	*Columba livia*		SE			NE			P	AE	√
Mourning Dove	*Zenaida macroura*		S5B, SZN			N5			FY	NE	√
Cuckoos											
Black-billed Cuckoo	*Coccyzus erythropthalmus*	√	S4B, SZN			N5B			S	S	√
Yellow-billed Cuckoo	*Coccyzus americanus*		S4B, SZN			N4B			CF	S	
Owls											
Great Horned Owl	*Bubo virginianus*		S5			N5			T	H	
Eastern Screech Owl	*Otus asio*		S5	NAR		N5	NAR		S	T	
Long-eared Owl	*Asio otus*		S4			N5B,N5N			S		
Goatsuckers and Swifts											
Common Nighthawk	*Chordeiles minor*		S4B, SZN	SC	SC	N5B	THR	THR	P	S	√
Whip-poor-will	*Caprimulgus vociferus*	√	S4B, SZN	THR	THR	N5B,NZN	THR				

Table 2.3 Birds Potentially Occurring on or within 120 m of the Project Location and their Conservation Status[1]

Species		Conservation Status[2]							Observed		
Common Name	Scientific Name	Partners In Flight Priority Species	Ontario			Canada			Ontario Breeding Bird Atlas Results 2001-2005[9]		2008 Site Visits
			SRANK[3]	COSSARO[4]	ESA[5]	NRANK[6]	COSEWIC[7]	SARA[8]	17MH30	17MH31	
Chimney Swift	*Chaetura pelagica*		S5B, SZN	THR	THR	N5B	THR	THR	T		
Hummingbirds											
Ruby-throated Hummingbird	*Archilochus colubris*		S5B, SZN			N5B			S	FY	√
Kingfishers											
Belted Kingfisher	*Ceryle alcyon*	√	S5B, SZN			N5B,N5N			NU	FY	√
Woodpeckers											
Red-headed Woodpecker	*Merlanerpes erythrocephalus*	√	S3B, SZN	SC	SC	N3B	SC	SC (3)	A	H	
Red-bellied Woodpecker	*Malanerpes carolinus*		S4			N3N4			S	FY	√
Downy Woodpecker	*Picoides pubescens*		S5			N5			FY	P	√
Hairy Woodpecker	*Picoides villosus*		S5			N5			H	FY	√
Northern Flicker	*Colaptes auratus*	√	S5B, SZN			N5B,N?N			A	FY	√
Pileated Woodpecker	*Dryocopus pileatus*		S4S5			N5			H	S	
Flycatchers											
Eastern Wood-pewee	*Contopus virens*	√	S5B, SZN			N5B			CF	T	√
Alder Flycatcher	*Empidonax alnorum*		S5B, SZN			N5B			S		
Least Flycatcher	*Empidonax minimus*		S5B, SZN			N5B			S	S	√
Willow Flycatcher	*Empidonax traillii*	√	S5B, SZN			N5B			H	S	√
Great Crested Flycatcher	*Myiarchus crinitus*		S5B, SZN			N5B			P	AE	√
Yellow Bellied Fly Catcher	*Empidonax flaviventris*		S5B			N5B					√
Eastern Phoebe	*Sayornis phoebe*		S5B, SZN			N5B			AE	AE	√
Eastern Kingbird	*Tyrannus tyrannus*	√	S5B, SZN			N5B			DD	FY	√
Swallows											
Purple Martin	*Progne subis*		S4B, SZN			N5B			AE	AE	√
Tree Swallow	*Tachycineta bicolor*		S5B, SZN			N5B			AE	CF	√
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*		S5B, SZN			N5B			AE	H	√
Bank Swallow	*Riparia riparia*	√	S5B, SZN			N5B			AE	AE	
Cliff Swallow	*Petrochelidon pyrrhonota*		S5B, SZN			N5B			H	AE	√
Barn Swallow	*Hirundo rustica*		S5B, SZN			N5B			AE	FY	√
Crows and Jays											
Blue Jay	*Cyanocitta cristata*		S5			N5B,N5N			A	AE	√
American Crow	*Corvus brachyrhynchos*		S5B, SZN			N5B,N5N			FY	FY	√
Larks											
Horned Lark	*Eremophila alpestris*		S5B, SZN			N5B,N5N			P	T	√
Chickadees and Titmice											
Black-capped Chickadee	*Poecile atricapillus*		S5			N5			CF	CF	√
Tufted Titmouse	*Baeolophus bicolor*		S2S3			N2					
Nuthatches											
White-breasted Nuthatch	*Sitta carolinensis*		S5			N5			A	FY	
Creepers											
Brown Creeper	*Certhia americana*		S5B, SZN			N5				H	√

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			SRANK[3]	COSSARO[4]	ESA[5]	NRANK[6]	COSEWIC[7]	SARA[8]	17MH30	17MH31	
Wrens											
Carolina Wren	*Thryothorus ludovicianus*		S3S4			N3				S	
House Wren	*Troglodytes aedon*		S5B, SZN			N5B			FY	CF	√
Winter Wren	*Troglodytes troglodytes*		S5B			N5					√
Sedge Wren	*Cistothorus platensis*		S4B, SZN	NAR		N5B	NAR				
Marsh Wren	*Cistothorus palustris*		S5B, SZN			N5B,N?N					
Kinglets and Gnatcatchers											
Blue-gray Gnatcatcher	*Polioptila caerulea*		S4B, SZN			N4B			A	AE	√
Ruby-crowned Kinglet	*Regulus calendula*		S5B, SZN			N5B				X	
Golden-crowned Kinglet	*Regulus satrapa*		S5B			N5					
Thrushes											
Eastern Bluebird	*Sialia sialis*		S4S5B,SZN	NAR		N5B,NZN	NAR		FY	AE	
Veery	*Catharus fuscescens*		S4B, SZN			N5B			S	H	
Wood Thrush	*Hylocichla mustelina*	√	S5B, SZN			N5B			P	A	√
Hermit Thrush	*Catharus guttatus*		S5B			N5B.NZN					√
American Robin	*Turdus migratorius*		S5B, SZN			N5B,N?N			CF	CF	√
Mimids											
Gray Catbird	*Dumetella carolinensis*		S5B, SZN			N5B			CF	NE	√
Northern Mockingbird	*Mimus polyglottos*		S4B, SZN			N3N4			H		
Brown Thrasher	*Toxostoma rufum*		S5B, SZN			N5B			CF	P	
Waxwings											
Cedar Waxwing	*Bombycilla cedrorum*		S5B, SZN			N5			P	P	√
Starlings											
European Starling	*Sturnus vulgaris*		SE			NE			CF	FY	√
Shrikes and Vireos											
Warbling Vireo	*Vireo gilvus*		S5B, SZN			N5B			AE	T	√
White-eyed Vireo	*Vireo griseus*		S2B, SZN			N2B			S		
Yellow-throated Vireo	*Vireo flavifrons*		S4B, SZN			N4B			S	S	√
Red-eyed Vireo	*Vireo olivaceus*		S5B, SZN			N5B			A	NE	√
Wood Warblers											
Blue-winged Warbler	*Vermivora pinus*	√	S4B, SZN			N4B			A	H	
Golden-winged Warbler	*Vermivora chrysoptera*	√	S4B, SZN	SC	SC	N4B			S		
Yellow Warbler	*Dendroica petechia*		S5B, SZN			N5B			CF	NU	√
Chestnut-sided Warbler	*Dendroica pensylvanica*		S5B, SZN			N5B			S	S	√
Pine Warbler	*Dendroica pinus*		S5B, SZN			N5B					
Cerulean Warbler	*Dendroica cerulean*	√	S3B, SZN	SC	SC	N3B	SC	SC			
American Redstart	*Setophaga ruticilla*		S5B, SZN			N5B			S	A	√
Prothonotary Warbler	*Protonotaria citrea*	√	S1S2B, SZN	END	END	N1N2B	END	END			
Ovenbird	*Seiurus aurocapillus*		S5B, SZN			N5B			S	S	√
Northern Waterthrush	*Seiurus noveboracensis*		S4B, SZN			N5B					
Mourning Warbler	*Oporornis philadelphia*		S5B, SZN			N5B			S		√
Common Yellowthroat	*Geothlypis trichas*		S5B, SZN			N5B			FY	A	√

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Species		Conservation Status[2]							Observed		
Common Name	Scientific Name	Partners In Flight Priority Species	Ontario			Canada			Ontario Breeding Bird Atlas Results 2001-2005[9]		2008 Site Visits
			SRANK[3]	COSSARO[4]	ESA[5]	NRANK[6]	COSEWIC[7]	SARA[8]	17MH30	17MH31	
Northern Parula	*Parula americana*		S4B			N5B					√
Connecticut Warbler	*Oporornis agilis*		S4B			N4B					√
Nashville Warbler	*Vermivora ruficapilla*		S5B			N5B					√
Black Throated Blue Warbler	*Dendroica caerulescens*		S5B			N5B					√
Black & White Warbler	*Mniotilta varia*		S5B			N5B					√
Magnolia Warbler	*Dendroica magolia*		S5B			N5B					√
Prairie Warbler	*Dendroica discolor*	√	S3S4B	NAR		N3B	NAR				√
Yellow Rumped Warbler	*Dendroica coronata*		S5B			N5B,NZN					√
Canada Warbler	*Wilsonia canadensis*	√	S5B, SZN	SC	SC	N5B	THR	THR	H	S	
Yellow-breasted Chat	*Icteria virens*	√	S2S3B, SZN	SC	SC	N5B	SC	SC			
Tanagers and Cardinals											
Scarlet Tanager	*Piranga olivacea*		S5B, SZN			N5B			P	S	
Northern Cardinal	*Cardinalis cardinalis*		S5			N5			FY	NE	√
Summer Finches											
Rose-breasted Grosbeak	*Pheuticus ludovicianus*	√	S5B, SZN			N5B			CF	FY	√
Indigo Bunting	*Passerina cyanea*		S5B, SZN			N5B			CF	T	√
Towhees, Sparrows, and Allies											
Eastern Towhee	*Pipilo erythrophthalmus*	√	S4B, SZN			N4B,NZN			FY	NB	
Chipping Sparrow	*Spizella passerina*		S5B, SZN			N5B			CF	NE	√
Field Sparrow	*Spizella pusilla*	√	S5B, SZN			N5B			FY	NE	√
Clay-colored Sparrow	*Spizella pallida*		S4B, SZN			N5B				H	
Vesper Sparrow	*Pooecetes gramineus*	√	S4B, SZN			N5B			S	T	√
Savannah Sparrow	*Passerculus sandwichensis*	√	S5B, SZN			N5B,NZN			CF	T	√
Song Sparrow	*Melospiza melodia*		S5B, SZN			N5			CF	NB	√
Swamp Sparrow	*Melospiza georgiana*		S5B, SZN			N5B,NZN					
White Crowned Sparrow	*Zonotrichia leucophrys*		S4B			N5B,N5N					√
White Throated Sparrow	*Zonotrichia albicollis*		S5B			N5B,NZN					√
Dark-eyed Junco	*Junco hyemalis*		S5B			N5					√
Snow Bunting	*Plectrophenax nivalis*		SNA			N5B,N5N					√
Icterids											
Eastern Meadowlark	*Sturnella magna*	√	S5B, SZN			N5B			V	CF	√
Bobolink	*Dolichonyx oryzivorus*	√	S4B, SZN	THR	THR	N5B	THR		AE	FY	√
Red-winged Blackbird	*Agelaius phoeniceus*		S5B, SZN			N5B,NZN			FY	CF	√
Common Grackle	*Quiscalus quiscula*		S5B, SZN			N5B,NZN			FS	NE	√
Brown-headed Cowbird	*Molothrus ater*		S5B, SZN			N5B,NZN			FY	NE	√
Orchard Oriole	*Icterus spurius*		SZB, SZN			N4B			H	S	
Baltimore Oriole	*Icterus galbulla*	√	S5B, SZN			N5B,NZN			FY	NY	√
Winter Finches											
House Finch	*Carpodacus mexicanus*		SE			N5			P	T	√
Purple Finch	*Carpodacus purpureus*		S5B			N5B,N5N					√
Common Redpoll	*Carduelis flammea*		S4B			N5B,N5N					√
American Goldfinch	*Carduelis tristis*		S5B, SZN			N5B,N5N			CF	NE	√

Table 2.3 Birds Potentially Occurring on or within 120 m of the Project Location and their Conservation Status[1]

Species		Conservation Status[2]							Observed		
Common Name	Scientific Name	Partners In Flight Priority Species	Ontario			Canada			Ontario Breeding Bird Atlas Results 2001-2005[9]		2008 Site Visits
			SRANK[3]	COSSARO[4]	ESA[5]	NRANK[6]	COSEWIC[7]	SARA[8]	17MH30	17MH31	
Old World Sparrows											
House Sparrow	*Passer domesticus*		SE			NE5			FY	AE	√

[1] Based on those birds recorded during Ontario Breeding Bird Atlas Surveys in Region 2, which includes the study area (BSC et al., 2006)
[2] Accessed from NHIC, 2008b, with the exception of Priority Species (Ontario Partners In Flight, 2005)
[3] SRANK = Provincial Status (NHIC 2008b); S = Sub-national (i.e. Ontario), E = Exotic species; 1 = Critically Imperilled; 2 = Imperilled; 3 = Vulnerable; 4 = Apparently Secure; 5 = Secure; B = Breeding; ZN = Non—breeding migrant/vagrant
[4] COSSARO = Committee on the Status of Species at Risk in Ontario; NAR = Not at Risk, SC = Special Concern, THR = Threatened, END = Endangered
[5] ESA = Ontario Endangered Species Act, 2007; SC = Special Concern, THR = Threatened
[6] NRANK = National Status (NatureServe (www.natureserve.org), in conjunction with Conservation Data Centres, such as NHIC); N = National Rank (i.e. Canada), E = Exotic species; 1 = Critically Imperilled; 2 = Imperilled; 3 = Vulnerable; 4 = Apparently Secure; 5 = Secure; ? = Rank Uncertain, B = Breeding, ZN = non-breeding migrant/vagrant, N = non-breeding
[7] COSEWIC = Committee on the Status of Endangered Wildlife in Canada; NAR = Not at Risk, SC = Special Concern, THR = Threatened, END = Endangered
[8] SARA = Species at Risk Act – Canada; SC = Special Concern, THR = Threatened, END = Endangered (on Schedule 1); SC (3) = Special Concern (on Schedule 3)
[9] Accessed from BSC et al., 2006. Data provided from two OBBA squares within Region 2 that overlap the study area. A = Agitated behaviour or anxiety calls, H = Species observed in breeding season in suitable nesting habitat, P = Pair observed in suitable nesting habitat in nesting season, S = Singing male present, or breeding calls heard, in suitable nesting habitat in breeding season, T = Permanent territory presumed, V = Visiting probable nest site, X = Species observed in its breeding season (no breeding evidence), AE = Adult leaving or entering nest sites, CF = Adult carrying food for young, DD = Distraction display, FS = Adult carrying fecal sac, FY = Recently fledged/downy young, NE = Nest containing eggs, NU = Used nest or egg shells found, NY = Nest with young seen or heard.

2.1 Species of Conservation Concern

2.1.1 Vegetation

No vegetation species of conservation concern were identified on or within 120 m of the Project location during the Records Review.

2.1.2 Reptiles and Amphibians

Four species of conservation concern were identified during the records review with potential for occurrence on or within 120 m of the Project location. Of these species, three were eliminated from further consideration based on an absence of suitable habitat (as identified in McKenney et al., 2007) and no records on or within 120 m of the Project location:

- Northern Map Turtle, listed as Special Concern on Schedule 5 of the ESA and Schedule 1 of SARA, prefers slow moving rivers, ponds, and marshes.
- Snapping Turtle, listed as Special Concern on Schedule 5 of the ESA and by COSEWIC, though not yet included on SARA, are commonly found in slow-moving waterbodies with a soft mud bottom and dense aquatic vegetation.
- Eastern Ribbon Snake, listed as Special Concern on Schedule 5 of the ESA and Schedule 1 of SARA, prefers low vegetation on the edge of quiet, shallow waters such as ponds, streams, marshes, swamps or bogs (COSEWIC, 2002a).

The remaining species considered with respect to the Natural Heritage Assessment is:

- Eastern Milksnake, listed as Special Concern on Schedule 5 of the ESA and Schedule 1 of SARA, is a habitat generalist being found in an array of habitats from fields to forests (COSEWIC, 2002b). An eastern Milksnake was reported in 1982 north of the Project location (see Figure 1.1 and it is assumed that this species may remain present in the study area. Suitable general use habitat is found on and within 120 m of the Project location. Specific features within the landscape that would provide candidate significant habitat for Milksnake, through provision of egg-laying sites, retreat sites, or hibernacula, would include the following:
  - organic material piles (sawdust/compost/wood chip) piles
  - rotting logs or stumps
  - brush piles
  - rock piles
  - dump sites of old agricultural debris/equipment.

2.1.3 Avifauna

Seven species of conservation concern were identified during the records review with potential for occurrence on or within 120 m of the Project location:

- Canada Warbler – Canada Warbler are listed as Threatened on Schedule 1 of SARA, and Special Concern on Schedule 5 of the ESA. Canada Warblers are commonly found in moist forests with

a well-developed understorey (McLaren, 2007). No woodlands were identified during the records review on or within 120 m of the Project location.

- Golden-winged Warbler – Golden-winged Warbler are listed as Special Concern on Schedule 5 of the ESA. Golden-winged warblers are found in successional scrub habitats (Vallender, 2007), a habitat type which was not identified on or within 120 m of the Project location during the records review.
- Bald Eagle – Bald Eagles within this portion of the province are listed as Special Concern on Schedule 5 of the ESA, though Not at Risk by COSEWIC. A Bald Eagle nest with young was recorded within OBBA square 17MH30 (see Table 2.3). However, this nest is found more than 2 km south of the Project location, in a larger woodlot (Dillon Consulting Ltd., 2008). Movement from this nest location would be expected toward the shore.
- Common Nighthawk – The Common Nighthawk is listed as Threatened on Schedule 1 of SARA, and Special Concern on Schedule 5 of the ESA. Common nighthawks are commonly observed foraging on the wing for insects over clearings, fields, ponds, and other open areas. Preferred nesting sites are bare ground in open areas or gravel rooftops in urban environments (Poulin et al, 1996). Suitable habitat for Common Nighthawk is found on or within 120 m of the Project location.
- Carolina Wren – Carolina Wren are listed as a Vulnerable (S3)/Apparently Secure (S4) species within Ontario. Carolina Wrens commonly occur in moist or bottomland woods (Read, 2007). No woodlands were identified during the records review on or within 120 m of the Project location.
- White-eyed Vireo – White-eyed Vireo are listed as an Imperilled species within Ontario. White-eyed Vireo commonly breed within the dense shrubbery of woodland edges, streamside bushes, or over-grown fields (James, 2007). No records of suitable habitat for white-eyed Vireo are known from on or within 120 m of the Project location.
- Red-headed Woodpecker – The Red-headed Woodpecker is listed as Special Concern on Schedule 5 of the ESA and on Schedule 3 of SARA. Red-headed Woodpecker commonly breed in open woodlands and woodland edges, especially riparian forest. Red-headed Woodpeckers require large, dead weathered trees or live trees with large dead branches for provision of nest sites (Woodliffe, 2007). Records reviews did not identify habitat of this type on or within 120 m of the Project location.

2.1.4 Mammals

Three species of conservation concern were identifies as having potential occurrence on or within 120 m of the Project location:

- Northern Long-eared Bat - The Northern Long-eared Bat is provincially listed as vulnerable (this ranking is uncertain due to the sparse information available). This bat hibernates during winter in mines or caves. During the summer, they prefer to roost in tree cavities, hollow trees or under loose bark, and hunt within forests, below the canopy. It has been found that maternity colonies were most commonly found in mature, shade tolerant deciduous tree stands (MNR, 2000; MNR,

2006). No potential hibernacula, daytime roosts, or maternity colony habitat were identified on or within 120 m of the Project location during the records review.

- Small-footed Bat - The Small-footed Bat is listed as provincially imperilled or vulnerable. Very little is known about the ecology of this species. This bat hibernates during winter in mines or caves and can tolerate lower temperatures and humidity than other bats. Daytime roosts have been observed in buildings and under stones, rock slabs and tree bark, while night roosts are known from caves and buildings. Very little is known about the foraging behaviour of this species. (MNR, 2000; MNR, 2006). As with Northern Long-eared Bat, no potential hibernacula, daytime roosts, or maternity colony habitat were identified on or within 120 m of the Project location during the records review.
- Eastern Pipistrelle - The Eastern Pipistrelle is provincially listed as vulnerable (this ranking is uncertain due to the sparse information available). Eastern Pipistrelle occurs in southern Ontario, and most commonly roost in foliage, through buildings and hollows of old trees can also be used. In the winter, they hibernate in caves and abandoned mines. They usually forage over watercourses and open spaces such as clearings and fields; apparently feeding mostly on moths (MNR, 2000; MNR, 2006). As with the other bat species, no potential hibernacula, daytime roosts, or maternity colony habitat were identified on or within 120 m of the Project location during the records review.

2.2 Conclusions of the Records Review

Based on the Records Review described above, the following natural features are not found on or within 120 m of the Project location:

- provincial parks or conservation reserves
- areas of natural and scientific interest (both earth and life sciences)
- valleylands.

The following natural features were identified during the Records Review as having potential for occurrence on or within 120 m of the Project location:

- woodlands
- wetlands
- wildlife habitat for species of conservation concern (see Section 2.1).

Table 2.4 Mammals Potentially Occurring on or within 120 m of the Project Location and their Conservation Status[1]

Species		Conservation Status[2]						Observed[9]
Common Name	Scientific Name	Ontario			Canada			
		SRANK[3]	COSSARO[4]	ESA[5]	NRANK[6]	COSEWIC[7]	SARA[8]	
Opossums								
Virginia Opossum	*Didelphis virginiana*	S4			N4			√
Shrews and Moles								
Common Shrew	*Sorex cinereus*	S5			N5			
Northern Short-tailed Shrew	*Blarina brevicauda*	S5			N5			
Star-nosed Mole	*Condylura cristata*	S5			N5			
Bats								
Small-footed bat	*Myotis leibii*	S2S3			N2N3			√
Little Brown Bat	*Myotis lucifuga*	S5			N5			√
Northern Long-eared Bat	*Myotis septentrionalis*	S3?			N4			√
Silver-haired Bat	*Lasionycteris noctivagans*	S4			N5			√
Eastern Pipistrelle	*Pipistrellus subflavans*	S3?			N4N5			√
Big Brown Bat	*Epstesicus fuscus*	S5			N5			√
Eastern Red Bat	*Lasiurus borealis*	S4			N4N5			√
Hoary Bat	*Lasiurus cinereus*	S4			N5			√
Rabbits and Hares								
Eastern Cottontail	*Sylvilagus floridanus*	S5			N5			√
European Hare	*Lepus europeanus*	SE			NE			
Rodents								
Eastern Chipmunk	*Tamias striatus*	S5			N5			√
Woodchuck	*Marmota monax*	S5			N5			
Grey Squirrel	*Sciurus carolinensis*	S5			N5			√
Red Squirrel	*Tamiasciurus hudsonicus*	S5			N5			
Southern Flying Squirrel	*Glaucomys volans*	S4	NAR		N4	NAR		
Beaver	*Castor canadensis*	S5			N5			
White-footed Mouse	*Peromyscus leucopus*	S5			N5			
Deer Mouse	*Peromyscus maniculatus*	S5			N5			
Meadow Vole	*Microtus pennsylvanicus*	S5			N5			
Muskrat	*Ondatra zibethicus*	S5			N5			√
Norway Rat	*Rattus norvegicus*	SE			NE			
House Mouse	*Mus musculus*	SE			NE			
Meadow Jumping Mouse	*Zapus hudsonius*	S5			N5			
Porcupine	*Erethizon dorsatum*	S5			N5			
Carnivores								
Coyote	*Canis latrans*	S5			N5			
Red Fox	*Vulpes vulpes*	S5			N5			
Raccoon	*Procyon lotor*	S5			N5			√
Ermine	*Mustela erminea*	S5			N5			

Species		Conservation Status[2]						Observed[9]
Common Name	Scientific Name	Ontario			Canada			
		SRANK[3]	COSSARO[4]	ESA[5]	NRANK[6]	COSEWIC[7]	SARA[8]	
Long-tailed Weasel	*Mustela frenata*	S4			N5			
Mink	*Mustela vison*	S5			N5			
Striped Skunk	*Mephitis mephitis*	S5			N5			√
Ungulates								
White-tailed Deer	*Odocoileus virginianus*	S5			N5			√

1 Based on Range Maps provided in Dobbyn, 1994.
2 Accessed from NHIC, 2008b
3 SRANK = Provincial Status; S = Sub-national Rank (Ontario), E = Exotic species, 2 = Imperilled, 3 = Vulnerable, 4 = Apparently Secure, 5 = Secure, ? = Rank Uncertain
4 COSSARO = Committee on the Status of Species at Risk in Ontario; NAR = Not at Risk, SC = Special Concern, END = Endangered
5 ESA = Ontario Endangered Species Act, 2007; END = Endangered
6 NRANK = National Status (NatureServe (www.natureserve.org), in conjunction with Conservation Data Centres, such as NHIC); N = National Rank; E = Exotic species; 2 = Imperilled, 3 = Vulnerable, 4 = Apparently Secure; 5 = Secure
7 COSEWIC = Committee on the Status of Endangered Wildlife in Canada; NAR = Not at Risk, SC = Special Concern, END = Endangered
8 SARA = *Species at Risk Act* – Canada; NAR = Not at Risk, SC (3) = Special Concern on Schedule 3, END = Endangered on Schedule 1
9 During 2008 site visits.

3. Site Investigation

This section documents the results of the site investigations that were completed to determine

- whether the results of the records review are correct
- whether any additional natural features exist, other than those that were identified in the records review
- the boundaries, located within 120 m of the Project location, of any natural feature that was identified in the records review; and
- the distance from the Project location to the boundaries of natural features.

3.1 Dates, Start Times and Duration of Site Investigations

Dates, start times, and durations of all site investigations associated with natural heritage features/terrestrial environment are provided in the Table 3.1.

Table 3.1 Dates, Start Times and Durations of Natural Heritage/ Terrestrial Environment Site Investigations

Date (mm/dd/yr)	Start Time	Duration (hours)	Focus of Site Investigation
02/07/08	09:59	6	Over-winter Birds, Wildlife Habitat
02/28/08	08:05	8	Over-winter Birds, Wildlife Habitat
03/12/08	08:30	7	Over-winter Birds, Wildlife Habitat
04/02/08	07:25	8	Spring Birds, Wildlife Habitat
04/24/08	06:18	10.5	Spring Birds, Wildlife Habitat
05/13/08	05:59	11	Spring Birds, Wildlife Habitat

Date (mm/dd/yr)	Start Time	Duration (hours)	Focus of Site Investigation
06/10/08	19:28	3	Summer Birds
06/11/08	05:19	10	Summer Birds, Wildlife Habitat, Woodlands, Valleylands, Wetlands
06/11/08	20:15	2	Summer Birds
06/12/08	05:24	7.5	Summer Birds, Wildlife Habitat, Woodlands, Valleylands, Wetlands
06/24/08	05:13	8	Summer Birds, Wildlife Habitat, Woodlands, Valleylands, Wetlands
06/24/08	19:06	3.5	Summer Birds
06/25/08	05:09	9.5	Summer Birds, Wildlife Habitat, Woodlands, Valleylands, Wetlands
06/25/08	19:16	3.5	Summer Birds
08/02/08	20:40	10.5	Bats, Wildlife Habitat
08/03/08	20:40	9.5	Bats, Wildlife Habitat
08/05/08	20:26	10.5	Bats, Wildlife Habitat
08/06/08	20:35	10	Bats, Wildlife Habitat
08/07/08	20:52	10	Bats, Wildlife Habitat
08/08/08	20:14	10.5	Bats, Wildlife Habitat
08/09/08	22:50	2	Bats, Wildlife Habitat
08/10/08	20:52	10	Bats, Wildlife Habitat
08/11/08	20:38	10	Bats, Wildlife Habitat
08/12/08	20:32	10	Bats, Wildlife Habitat
08/13/08	20:30	10	Bats, Wildlife Habitat
08/14/08	20:19	10.5	Bats, Wildlife Habitat
08/15/08	20:33	10	Bats, Wildlife Habitat
08/18/08	20:28	10	Bats, Wildlife Habitat
08/19/08	14:00	4	Fall Birds, Wildlife Habitat
08/19/08	20:33	10	Bats, Wildlife Habitat
08/20/08	06:11	10	Fall Birds, Wildlife Habitat
08/20/08	20:29	10	Bats, Wildlife Habitat
08/21/08	20:10	10.5	Bats, Wildlife Habitat
08/25/08	20:40	10	Bats, Wildlife Habitat
08/26/08	20:18	10.5	Bats, Wildlife Habitat
08/27/08	20:29	3.5	Bats, Wildlife Habitat
08/28/08	20:29	10.5	Bats, Wildlife Habitat
08/29/08	20:27	10.5	Bats, Wildlife Habitat
09/03/08	10:30	6.5	Fall Birds, Wildlife Habitat
09/03/08	20:01	11	Bats, Wildlife Habitat
09/04/08	06:00	4.5	Fall Birds, Wildlife Habitat
09/07/08	20:08	11	Bats, Wildlife Habitat
09/09/08	19:58	11	Bats, Wildlife Habitat
10/02/08	06:50	11	Fall Birds, Wildlife Habitat
10/30/08	07:30	10	Fall Birds, Wildlife Habitat
05/11/10	10:00	6	Wildlife Habitat
04/27/11	12:45	4	Wildlife Habitat, Wetland
05/05/11	10:00	0.5	Wildlife Habitat
05/11/11	13:54	0.5	Wildlife Habitat

3.2 Weather Conditions During Site Investigations

Weather conditions at the time of all site investigations are provided in Appendix A associated with the results of the individual surveys.

3.3 Names and Qualifications of Persons Conducting Site Investigations

All site investigations were conducted by Sean Male, with the exception of the visits on May 11, 2010 and April 27, 2011, which were conducted by Caleb Coughlin, and May 5, 2011 which was conducted by Levi Snook and Melissa Gibson. Qualifications for both of these individuals are provided in Appendix A.

3.4 Site Investigation Methodologies

Generally, lands on and within 120 m of the Project location were searched by the observer on foot in order to document natural features. Photographs of the site were taken. Any observations of wildlife, vegetation, or natural features were noted. Criteria for consideration of natural features were obtained from the Ministry of Natural Resource's Natural Heritage Reference Manual (MNR, 2009) and the Significant Wildlife Habitat Technical Guide (MNR, 2000).

Targeted surveys were completed for bird and bat populations, these survey methodologies are described below.

A copy of the field notes kept by the observer is provided in Appendix B.

3.4.1 Birds

In order to increase the level of understanding with respect to bird populations and bird use of the study area, a baseline investigation program was developed using existing provincial and federal guidance documents:

- Environment Canada (EC) and Canadian Wildlife Service (CWS) – Wind Turbines and Birds – A Guidance Document for Environmental Assessment (EC and CWS, 2007a)
- EC and CWS – Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds (EC and CWS, 2007b)
- Ontario Ministry of Natural Resources (MNR) – Guideline to Assist in the Review of Wind Power Proposals – Potential Impacts to Birds and Bird Habitats (MNR, 2007a).

3.4.1.1 Summer Breeding

Breeding bird surveys were conducted during the summer on June 10 to 12 and repeated on June 24 and 25, 2008, to provide replicate coverage of the site. Surveys consisted of a combination of point counts, area searches, and vista surveys (also known as behaviour watches), as well as targeted surveys for certain Species at Risk to document species presence and movement within the study area. Monitoring locations are shown in Figure 3.1.

Roadside point count surveys (RPCs) were conducted at 20 stations along roads within the study area in representative habitats. Point counts commenced 0.5 hours prior to dawn and continued until a maximum of 5 hours after dawn (this was predominantly restricted to 2 to 3 hours past dawn). The starting RPC location was randomly assigned with a different starting point on each date. RPCs lasted

10 min, where a single observer recorded all birds noted through visual or auditory means during the period.

In addition to the RPCs, five point count locations were placed within each of the three woodlots for which access was granted. These surveys also involved the use of playback for species of conservation concern (discussed in greater detail below). In association with woodlot point counts, random area searches were conducted, consisting of an observer moving through the woodlot and documenting all species observed. Extensive searching, lasting 1 to 2 hours, was undertaken during these periods to detect breeding species. As with RPCs, these surveys were completed within 5 hours after dawn.

Finally, a 2-hr unlimited distance vista survey was conducted at each of three vista survey locations in order to document bird behaviour, as well as to focus on the movement of soaring birds which can commonly occur within the blade sphere of a wind turbine generator (defined as the risk zone). Locations, shown in Figure 3.1, were selected to provide representative coverage of the entire study area. Vista surveys were completed between 10:00 and 16:00 EST in order to provide coverage during the period of greatest activity for soaring birds.

In addition to the surveys described above, targeted investigations were conducted to detect (i) the possible occurrence of Species at Risk (for which presence was considered possible based on Ontario Breeding Bird Atlas (OBBA) records) or (ii) species which may have otherwise been missed:

- **Acadian Flycatcher (*Empidonax virescens*) / Canada Warbler (*Wilsonia canadensis*)/Red-headed Woodpecker (*Melanerpes erythrocephalus*)** – As part of point counts within forest habitat, a broadcast survey of Acadian Flycatcher, Canada Warbler, and Red-headed Woodpecker calls was conducted. This, and all broadcast surveys described below, consisted of a period of passive observation, followed by broadcast individual calls of target species, followed by another period of passive observation.
- **Bald Eagle (*Haliaeetus leucocephalus*)** – Bald Eagles were targeted during vista surveys within the study area.
- **Least Bittern (*Ixobrychus exilic*)** – A broadcast survey was conducted at the borders of the recovered wetland habitat situated immediately north of the eastern portion of the Project location (see Figure 3.1). The survey followed the protocols of the Marsh Monitoring Program (Bird Studies Canada, 2009a), with the exception that only Least Bittern calls were broadcast.
- **Common Nighthawk (*Chordeiles minor*)/Chimney Swift (*Chaetura pelagica*)/American Woodcock (*Scolopax minor*)** – These species are considered to be crepuscular (meaning they are commonly observed at dusk). In order to detect their presence, 10-minute RPCs were conducted at dusk (starting 1.5 hours prior to sunset) at seven stations within the study area (those used during migration monitoring, see Section 3..4.2 below). As part of this survey, broadcast recordings of Common Nighthawk calls were played.
- **Owls** – Following Common Nighthawk surveys, broadcast surveys of owl calls were conducted from the same RPC locations during the first 2 hours following sunset in order to detect the presence of owl species. The following species were included in the playback: Short-eared Owl (Asio flammeus), Eastern Screech-owl (Otus asio), Long-eared Owl (Asio otus), Great Horned

RPC02
RPC04
RPC01
RPC06
RPC08
Muirkirk Line
Highway 401
TOWNSHIP OF ORFORD
WEST ELGIN
RPC10
BAT02
VI03 *Fall*
RPC05
RPC03
BAT03
RPC11
RPC12
MacPherson Road
RPC09
BAT 01
FPC05
Muirkirk
FPC04
RPC07
RPC21
VI03 *Summer/Spring*
RPC17
RPC19
Duart
VI02
RPC13
Highgate
FPC03
RPC14
RPC20
Scott Line
RPC18
Duart Road
RPC15
FPC02
FPC01
Dubs Drain
Bury Road
VI01
RPC16
Fleming Creek
Clear Creek

Legend

- Bat Monitoring Station and Identifier (BAT01)
- Vista Survey Station and Identifier (VI01)
- Forest Point Count Station and Identifier (FPC01)
- Roadside Point Count Station and Identifier (RPC01)
- Biological Study Area
- Building
- Wetlands
- Woodland
- Woodlot Used for Baseline Investigation

Base data downloaded from
www.geographynetwork.ca
NRVIS data from MNR LIO.
UTM NAD 83.December 2009

0 0.25 0.5 1 Kilometres

NORTH

1:35,000

Figure 3.1
Saturn Power Inc.
Gesner Wind Energy Project
Biological Study Locations

HATCH

P:\SATURN\328628\GIS\Biological Study Locations.mxd

Back Figure 3.1

Owl (*Bubo virginianus*), Barred Owl (*Strix varia*), and Barn Owl (*Tyto alba*). Broadcast surveys were conducted as per the guidelines of the Ontario Nocturnal Owl Survey (Bird Studies Canada, 2009b).

3.4.1.2 Spring Migration

Bird surveys were conducted during the spring migration period to document species presence and movement within the study area. Three visits to the site were conducted on April 2, April 24, and May 13, 2008. As with summer breeding monitoring, RPCs, area searches, and vista surveys of woodlots were conducted. Monitoring locations are shown in Figure 3.1.

RPCs were started within a half-hour of sunrise and were completed between 05:59 and 08:47 EST. Surveys were conducted at fewer point count locations (seven) than during summer breeding monitoring in order to allow for vista surveys to detect large movements of birds, in particular soaring raptors. RPCs utilized during spring monitoring include RPC01, RPC04, RPC05, RPC09, RPC12, RPC15, and RPC17.

Random area searches of the three woodlots available for search were also conducted with searches lasting between 25 and 40 minutes depending on the size of the woodlot and level of activity.

Vista surveys were conducted following woodlot area searches, following the protocols identified for summer bird monitoring.

3.4.1.3 Fall Migration

Surveys were conducted on August 19 to 21, September 3 to 4, October 2, and October 30, 2008. The first two surveys occurred over 2 to 3 days as they were conducted in conjunction with baseline bat monitoring. Surveys during the fall migration were conducted exactly as indicated during the spring migration (see Section 3.4.2), however prior to the start of fall migration surveys the proponent indicated that most turbines would be placed in the northeast corner of the study area. As a result, some survey locations were refined in order to focus on the area of likely turbine placement. Changes made were

- RPC04 replaced with RPC08
- RPC05 replaced with RPC06
- Vista Survey 03 moved to Bat Monitoring Station 02 (all locations shown in Figure 3.1).

3.4.1.4 Over-wintering

Three surveys were conducted on February 7, February 28 and March 12, 2008. Surveys consisted of a combination of RPCs and area searches of the local woodlots for which permission was obtained. Monitoring locations are shown in Figure 3.1.

RPCs were completed as during summer breeding monitoring (see Section 3.4.1) between 07:30 and 14:00 EST. Surveys were conducted at 20 points along the roadside in representative habitats, with the starting location determined randomly.

Following point counts, random area searches of the three woodlots were conducted, with searches lasting between 20 and 45 minutes depending on the size of the woodlot and level of activity.

3.4.2 Bats

Baseline bat surveys were completed in consideration of the *Guideline to Assist in the Review of Wind Power Proposals: potential impacts to Bats and Bat Habitats* (MNR, 2007b), and discussions with the local MNR office (Simpson, 2008).

Prior to the commencement of baseline monitoring, three survey stations were identified (shown in Figure 3.1). Station locations were selected to ensure surveys were spatially distributed throughout the area where turbines may be deployed. Surveys were placed in agricultural fields, two in harvested hay fields (Sites 2 and 3) and one in the middle of a corn field (Site 1).

Fifteen nights of surveys were completed at each survey location from August 2 through September 9, 2008. Surveys were extended into September as a result of weather conditions at the site that restricted monitoring on some occasions (i.e., periods of significant rain).

An array of four electret ultrasound microphones (manufactured by Avisoft; see www.avisoft.com) were deployed 4 m above the ground on a telescoping light stand. Microphones were deployed at 90-deg angles from each other in order to ensure adequate coverage of the study site. Microphones were then connected to an Avisoft Ultrasound Gate 416-200, which converts all input signals from analog to digital and outputs, then to a laptop running Avisoft RECORDER Version 3.3 (a multi-channel triggering hard-disk recording software program).

Each evening, two stations were monitored, with units deployed prior to the start of bat movements within the area (at or within a half-hour of sunset). Recordings were made continuously until sunrise or the hard disk was full (1 to 2 hours before sunrise), with files saved in 1 or 2 minute lengths. Weather conditions at the time of deployment were noted. Weather conditions were favourable during the monitoring period (no rain, low wind, temperatures greater than 10°C); however, occasionally rainstorms would pass through the study area which would require equipment to be removed while the rains occurred.

Recordings were then analyzed in the lab using Avisoft-SASLab Pro, Version 4.40, to determine the number of bat passes that were observed (as number of bats cannot be determined from acoustic monitoring), to classify observed calls by species and to document occurrences of feeding buzzes (where a bat increases the frequency of its calling in an attempt to pinpoint the location of a potential prey). Big Brown Bats (*Epstesicus fucus*) and Silver-haired Bats (*Lasionycteris noctivagans*) cannot be distinguished from each other through analysis of acoustic recordings, so observations of these species are grouped together (MNR, 2006).

In addition to the acoustic monitoring program, 45 minutes of spotlighting was completed at each station monitored that evening during the first 2 hours following sunset. Though not used to quantify bat numbers, this information is useful in aiding in interpretation of acoustic monitoring results and is discussed, where relevant, in the report below.

3.5 Results of Site Investigations

Results presented below are related to the identification of natural heritage features as described in O. Reg. 359/09.

Detailed results of bird and bat surveys are presented within the REA Report (Hatch, 2010).

3.5.1 Valleylands

No valleylands were identified on or within 120 m of the Project location during the site investigation

3.5.2 Wetlands

No wetlands were identified on or within 120 m of the Project location during the site investigation.

The areas which had been identified as consisting of wetland during the Records Review were surveyed during the site investigation to search for areas of wetland vegetation. These wetland areas were determined to be no longer present, and have been incorporated into row-crop agricultural lands. As a result, there are no wetlands on or within 120 m of the Project location.

3.5.3 Wildlife Habitat

The study area lies within the Ontario Ministry of Natural Resources Ecoregion 7E (Lakes Erie-Ontario), which is also known as the Carolinian Ecoregion. Though this ecoregion represents only 1% of the land area of Canada, its southern latitude and proximity to the moderating influences of the Great Lakes result in this ecoregion containing a greater number of species of fauna than any other in Canada (Carolinian Canada, 2009).

The Significant Wildlife Habitat Technical Guide (SWHTG) (MNR, 2000) identifies four main types of wildlife habitat:

- habitat for seasonal concentrations of animals
- rare or specialized habitats for wildlife
- habitat for species of conservation concern
- wildlife movement corridors.

Each of these types of wildlife habitat is considered further below and how they were considered during the site investigation is discussed.

3.5.3.1 Habitats of Seasonal Concentrations of Animals

There are many different kinds of seasonal concentration areas, with the likelihood of occurrence of one of these areas depending on the characteristics of the study location. Those that were considered during the site investigations, and the discussion of their potential occurrence on the Project location, are discussed below:

- Winter deer yards/moose late winter habitat – Winter deer yards/moose late winter habitat are sheltered areas in woodlands where these species congregate during the winter months. As woodlands are not found on or within 120 m of the Project location, these features are not identified.

- Colonial bird nesting sites – Colonial bird nesting sites are locations where colonial species, such as herons, gulls, terns, and swallows traditionally nest in colonies of varying size. Though colonial breeding species were observed during the site investigation, no colonial bird nesting sites were identified on or within 120 m of the Project location. Further, habitats capable of supporting colonial bird nesting sites (marshlands, eroding banks/steep slopes, swamps, rocky islands or peninsulas) were not identified on or within 120 m of the Project location.

- Waterfowl stopover and staging areas – Waterfowl traditionally congregate in larger wetlands and relatively undisturbed shorelines with vegetation during spring and fall migration. Further, during the fall migration, waterfowl may commonly congregate in feeding or roosting ponds. Such features are not found on or within 120 m of the Project location. Congregations of Tundra Swans were observed flying overhead, and found foraging on fields northwest of the Project location (northwest of the intersection of Muirkirk Line and Duart Rd) during the first spring site visit. As no stopover or staging locations were identified on or within 120 m of the Project location, this wildlife habitat type is not present.

- Waterfowl nesting – Waterfowl nesting sites can consist of relatively large, undisturbed upland areas with abundant ponds and wetlands, while other species nest within tree cavities in swamps or on the shorelines of water bodies. Suitable waterfowl nesting habitat was not observed on or within 120 m of the Project location and no waterfowl nests or evidence of waterfowl nesting was recorded during the site investigation.

- Shorebird/Landbird migratory stopover areas – Shorebird migratory stopover areas are found along the shorelines of the Great Lakes and James Bay, while landbird stopover areas are found along the shorelines of the Great Lakes and contain a variety of habitat types from open fields to large woodlands. As the Project location is located more than 5 km away from these areas, this habitat type cannot occur on the Project location. Further, no significant concentrations of shorebirds or landbirds were noted during the site investigation.

- Raptor winter feeding and roosting areas – This combined habitat type features suitable raptor roosting sites in proximity to winter feeding areas. For most raptor species, roosting sites are traditionally in woodlands, a habitat type which is absent within 120 m of the Project location. Several raptors were observed within the study area during the winter, with Red-tailed Hawks forming the dominant component. The composition of the local raptor community would be expected to vary year to year, in conjunction with population fluctuations in prey populations, with the exception that Red-tailed Hawks are anticipated to always form a primary component of the local population. Observations of raptors from the study area are identified within Table 3.2. No significant concentrations were noted. Therefore, the absence of woodlands within 120 m of the Project location, in combination with the low numbers of raptors observed indicates that this wildlife habitat type is not present on or within 120 m of the Project location.

- Wild turkey winter range – Similar to winter deer yards, wild turkey rely on woodlands for winter protection. As was previously discussed, such habitat was not identified during the site investigation within 120 m of the Project location and therefore wild turkey winter range is not found.

Table 3.2 Raptors Observed During Winter 2008 Roadside Point Counts

	Number by Date			
Species	**02/07**	**02/28**	**03/12**	**Total # (% of Total)**
Cooper's Hawk	2			2 (0.2%)
Northern Harrier	3	2		5 (0.5%)
Red-tailed Hawk	4	2	2	8 (0.7%)
Sharp-shinned Hawk	1			1 (0.1%)
Total	**10**	**4**	**2**	**1101 (100%)**

- Turkey vulture summer roosting areas – Turkey vulture summer roosting areas traditionally consist of cliff ledges and large snags. No cliff ledges were noted during the site investigation; however, there are scattered dead or partially dead trees within the hedgerows. However, no evidence of turkey vulture roosting was noted from these features within 120 m of the Project location.
- Reptile hibernacula – Reptile hibernacula are commonly found in animal burrows and rock crevices. Animal burrows were not noted on or within 120 m of the Project location. However, two rock piles are present within 120 m of the Project location. These features are discussed separately below:
  - Rock Pile 1 (see Figure 3.2) – Located within 56 m of WTG5, this rock pile consists of material removed from adjacent agricultural lands. Much of the rock pile consists of small rocks that are not considered sufficient to provide reptile hibernacula functions (i.e., insufficient spacing between rocks to permit snake entrance and retreat to sheltered areas deep within the pile). However, there are some large rocks associated with the pile such that the feature meets candidate functions. Therefore, there is candidate significant hibernacula found within 120 m of the Project location.
  - Rock Pile 2 (see Figure3.3) – Located within 30 m of WTG4, this rock pile consists of material recently removed from the drainage ditch. The material is spread thinly on the landscape such that it would not provide hibernacula functions, i.e., materials are of insufficient depth to provide shelter from the frost layer). As a result, this feature is not considered further in terms of candidate significant wildlife habitat.

Figure 3.2 View of Rock Pile 1

Figure 3.3 View of Rock Pile 2

- Bat hibernacula – Bat hibernacula are found in caves or abandoned mines. These features were not identified during the site investigation.
- Bat maternity colonies – No standing hollow trees were noted within the hedgerows within 120 m of the Project location. Therefore, no further investigations were conducted and there are no bat maternity colonies present within 120 m of the Project location.
- Bullfrog concentration areas – Bullfrog concentration areas are predominantly found in areas of marsh habitat. Such habitat is not found on or within 120 m of the Project location.
- Migratory butterfly stopover areas – These habitats are found within 5 km of the Great Lakes; as the Project area is located outside of this zone, such habitat features are not found.

Therefore, there are no candidate significant seasonal concentration areas identified on or within 120 m of the Project location.

3.5.3.2 Rare Vegetation Communities or Specialized Habitat for Wildlife

Rare vegetation communities include alvars, tall-grass prairies, savannahs, rare forest types, talus slopes, rock barrens, sand barrens and Great Lakes dunes. None of these vegetation communities were identified on or within 120 m of the Project location during the site investigation.

Specialized wildlife habitats include

- areas that support species that have highly specific habitat requirements
- areas with high species and community diversity
- areas that provide habitat that greatly enhances species' survival.

There are many habitat types that may meet these definitions; those that were considered during the site investigations as they had the potential to be present in the area, and the discussion of their potential occurrence on the Project location, are addressed below:

- Habitat for area-sensitive species – Appendix C of the SWHTG lists area-sensitive species. Several of these species were recorded during the site investigations within the study area and are discussed below:
  - Grassland/Agricultural Land Species (Northern Harrier, Upland Sandpiper, Savannah Sparrow). These species were all recorded during the site investigation within the study area, though only Northern Harrier and Savannah Sparrow were observed within 120 m of the Project location. As a result candidate significant wildlife habitat for Northern Harrier and Savannah Sparrow has been identified on all lands on and within 120 m of the Project location.
  - Other Species (Sharp-shinned Hawk, Cooper's Hawk, Broad-winged Hawk, Hairy Woodpecker, Least Flycatcher, Brown Creeper, Winter Wren, Hermit Thrush, Yellow-throated Vireo, Northern Parula, Magnolia Warbler, Black-throated Blue Warbler, Black-and-white Warbler, American Redstart, Ovenbird) – Suitable habitat for these species is not found on or within 120 m of the Project location and therefore candidate significant wildlife habitat is not found.

- Forests providing a high diversity of habitats – There are no forest communities present within 120 m of the Project location.
- Old-growth or mature forest stands – There are no forest communities present within 120 m of the Project location.
- Foraging areas with abundant mast – An abundance of beech and oak trees, mast-producing trees, were not recorded within 120 m of the Project location during the site investigation. Similarly, no large patches of berry-producing shrubs, or mountain ash, apple or black cherry trees were recorded. As a result, this specialized habitat is not found.
- Woodlands supporting amphibian-breeding ponds – There are no forest communities present within 120 m of the Project location.
- Turtle-nesting habitat – Turtle-nesting sites are areas where soft substrates, such as sand or fine gravel, are found that permit turtles to excavate their nests, and are located in open, sunny areas. Neither water body within 120 m of the Project location was considered to be suitable of supporting turtle movement within 120 m of the Project location during the breeding season. As a result, this habitat type is not found.
- Specialized raptor-nesting habitat – A single stick nest was recorded within the hedgerow community northeast of WTG5; however, based on the location and shape of the nest, is determined to be a nest of an American Crow (*Corvus brachyrhynchos*). Further, as there are no woodlands present on or within 120 m of the Project location, this habitat type cannot occur. Therefore, this habitat type is not found on or within 120 m of the Project location.
- Mink, otter, marten, and fisher denning sites – Denning sites for these members of the weasel family were not recorded on or within 120 m of the Project location during the site investigation.
- Highly diverse areas – The habitats present on and within 120 m of the Project location were considered in respect of diversity. As the habitat is predominantly agricultural lands with minimal diversity, lands on and within 120 m of the Project location were not considered to be highly diverse.
- Cliffs and caves – These features were not identified on or within 120 m of the Project location during the site investigation.
- Seeps and springs – These features were not identified on or within 120 m of the Project location.

As a result, habitat for Savannah Sparrow and Northern Harrier were identified on or within 120 m of the Project location as candidate significant wildlife habitats.

3.5.3.3 Habitat of Species of Conservation Concern

3.5.3.3.1 Reptiles and Amphibians

Though not detected during baseline surveys, suitable general use habitat for Eastern Milksnake is found associated with all lands on and within 120 m of the Project location given their status as a habitat generalist. However, specific features previously identified in Section 2.1.2 that may provide

candidate significant wildlife habitat for Milksnake were not observed. Therefore, there is no candidate significant wildlife habitat for Milksnake on or within 120 m of the Project location.

3.5.3.3.2 Avifauna

The seven species of conservation concern that were identified during the records review are discussed further below:

- Canada Warbler – Canada Warbler were not recorded during the site investigations, and further, no suitable breeding habitat (interior woodlands) were identified during the site investigation on or within 120 m of the Project location.
- Golden-winged Warbler – Golden-winged Warbler were not recorded during the site investigations, and further, no suitable breeding habitat (early successional scrubland) were identified during the site investigation on or within 120 m of the Project location.
- Bald Eagle – Bald Eagles were not recorded during the site investigations, and further, no suitable breeding habitat (large woodlands) were identified during the site investigation on or within 120 m of the Project location.
- Common Nighthawk – Though targeted surveys for this species were conducted, none were observed during the breeding season. Therefore, habitat for Common Nighthawk are determined to not be present on or within 120 m of the Project location. Common Nighthawk were recorded flying across the Project location during fall migration, however no evidence of use of habitat features present on or within 120 m of the Project location was noted.
- Carolina Wren – Carolina Wren were not recorded during the site investigations, and further, no suitable breeding habitat (woodlands along streams, woodlands with slash piles) were identified during the site investigation on or within 120 m of the Project location.
- White-eyed Vireo – White-eyed Vireo were not recorded during the site investigations, and further, no suitable breeding habitat (dense, swampy thickets, early successional fields) were identified during the site investigation on or within 120 m of the Project location.
- Red-headed Woodpecker – Red-headed Woodpecker were not recorded during the site investigations, and further, no evidence of Red-headed Woodpecker use was noted within the suitable habitat within 120 m of the Project location.

In addition to those species identified during the Records Review, the following species of conservation concern were noted during the site investigations:

- Rough-legged Hawk – A single Rough-legged Hawk was recorded soaring over the Project location during the spring migration period. No evidence of use of habitat feature present on or within 120 m of the Project location was noted. Therefore, this habitat type is not found on or within 120 m of the Project location.
- Prairie Warbler – Prairie Warbler were recorded within early successional habitat associated with the railway line/transmission corridor within the northwestern portion of the study area, more than 120 m from the Project location. Further, areas of suitable habitat are not found on or

within 120 m of the Project location. Therefore, this habitat type is not found on or within 120 m of the Project location.

3.5.3.3.3 Mammals

Though all three bat species of conservation concern (Northern Long-eared Bat, Small-footed Bat, Eastern Pipistrelle) were detected during baseline surveys, no candidate daytime roosts, maternity colony, or hibernacula locations were identified during baseline investigations on or within 120 m of the Project location as there are

- no caves or abandoned mines on or within 120 m of the Project location
- no human structures or rock faces on or within 120 m of Project location
- no hollow trees or trees with loose bark within the woodland and hedgerows within 120 m of the Project location.

Therefore, wildlife habitat for bat species of conservation concern is not present on or within 120 m of the Project location.

3.5.3.4 Animal Movement Corridors

The SWHTG (MNR, 2000) defines animal movement corridors as "elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another". Animal movement corridors were considered during the site investigation. Such features were found to be present within the hedgerows and watercourse on and within 120 m of the Project location. Hedgerows were not previously identified during the records review, and this represents a correction from the records review.

These features are considered to be candidate significant animal movement corridors, and are described further, including their distance from the Project location, in Section 4.

3.5.4 Woodlands

The Records Review identified a woodland present within 120 m of WTG 4 and the associated access road. This feature was investigated thoroughly during the site investigations in 2011 and it was determined to not meet the definition of woodland present in the pre-2011 REA Regulation, and was more consistent with a hedgerow community (i.e., feature consists of a single to maximum double row of trees to a maximum width of 25 m (from crown edge to crown edge)). As such, the feature does not meet the definition of a woodland. Therefore, there are no woodlands present on or within 120 m of the Project location.

The hedgerow community is discussed further in Section 4.4.3.

3.6 Conclusions of the Site Investigations

Based on the Site Investigation described above, it was confirmed that the following features are not found on or within 120 m of the Project location:

- Provincial Parks or Conservation Reserves
- Areas of Natural and Scientific Interest (both earth and life sciences)

- Wetlands
- Woodlands
- Valleylands.

The following features were identified during the Site Investigation as having potential for occurrence on or within 120 m of the Project location:

- Animal Movement Corridors
- Reptile Hibernacula
- Habitat for Area-Sensitive Species (Northern Harrier/Savannah Sparrow).

4. Evaluation of Significance

This section documents the results of the evaluation of significance for the following natural features that were identified on and within 120 m of the Project location:

- Animal Movement Corridors
- Reptile Hibernacula
- Habitat for Area-Sensitive Species (Northern Harrier/Savannah Sparrow).

4.1 Evaluation Criteria and Procedures

The criteria and procedures outlined in the MNR Natural Heritage Assessment Guide for Renewable Energy Projects (NHAG) (MNR, 2010) and Significant Wildlife Habitat Technical Guide (SWHTG) (MNR, 2000) are used to evaluate the significance of wildlife habitat. The specific criteria used in the evaluation from these sources are discussed by habitat type below.

4.2 Dates of Start and Completion of Evaluation

The evaluation of wildlife habitat commenced in May 2008 and was finalized with the completion of this report in May 2011.

4.3 Name and Qualification of Evaluator

Evaluations of wildlife habitat were completed by Sean K. Male of Hatch Ltd. His qualifications are provided in Appendix A.

4.4 Determination of Significance

4.4.1 Seasonal Concentration Areas

Criteria for evaluation of seasonal concentration areas are identified within Table Q-1 of Appendix Q of the SWHTG. The criteria that were considered during the evaluations of the features are discussed with respect to the individual features below.

4.4.1.1 Reptile Hibernacula

The criteria for reptile hibernacula include the following:

- Relative importance of the site – Site investigations were conducted on April 27, 2011, and May 5, 2011, in order to determine the importance of the site. Details on timing of site investigations are provided previously in Section 3.1. During the site investigations, the rock pile was searched for evidence of snakes, and an area within 100 m of the rock pile was surveyed via transects spaced 20 m apart. No evidence of snakes were recorded. As a result, it is determined that this features is not used and of no importance, and therefore this criteria is not met.
- Presence of species of conservation concern/Species diversity/Abundance – As site investigations determined that this feature is not used, these criteria are not met.
- Habitat Quality - As site investigations determined that this feature is not used, the feature is clearly of poor quality for reptile hibernacula.
- Location of Site – The site is located along a hedgerow, with provides some benefit to wildlife movement, however the hedgerow was determined to not be a significant animal movement corridor
- Level of disturbance – The site is subject to occasional disturbance as a result of adjacent row-crop agricultural activities.

Therefore, as site investigations confirmed this feature is not in use, it is determined to not be a significant wildlife habitat.

4.4.2 Specialized Habitat for Wildlife

Criteria for evaluation of specialized habitat for wildlife are identified within Table Q-2 of Appendix Q of the SWHTG. The criteria that were considered during the evaluations of the features are discussed with respect to the individual features below.

4.4.2.1 Habitat for Northern Harrier, an Area-Sensitive Species

The criteria for area-sensitive grassland species include the following:

- Presence of rare, uncommon, or declining species – Northern Harrier populations are believed to be stable or expanding within the province (Ontario Partners in Flight, 2005). Therefore, this criteria is not met.
- Overall area of the site/current representation of the specialized habitat – Based on satellite imagery, there are several large contiguous areas of grassland present within the regional area; therefore, this site does not represent a large proportion of these lands within the planning area. As a result, this criteria is not met.
- Amount of vertical stratification of site – No vertical stratification was noted during the site investigation within the Project location. Therefore, this criteria is not met.
- Degree of disturbance – The Project location is primarily row crop agricultural, and hayfields that are harvested annually, and not in an early stage of succession. Therefore, this criteria is not met.

- Amount of adjacent residential development – The amount of adjacent residential development is minimal, and therefore this criteria is met.
- Provision of significant wildlife habitat – No other significant wildlife habitats are identified, therefore, this criteria is not met as several significant wildlife habitats were not noted.
- Potential for long-term protection of the site – The site is located on private land, and therefore, long-term protection of the feature cannot be assured.

Therefore, the habitat for northern harrier present on and within 120 m of the Project location is not considered to be significant.

4.4.2.2 Habitat for Savannah Sparrow, an Area-Sensitive Species

The criteria for area-sensitive grassland species include the following:

- Presence of rare, uncommon, or declining species – Savannah Sparrow populations are believed to be declining as a result of reductions in grassland habitats associated with reforestation, intensification of agriculture, and development within the province (Ontario Partners in Flight, 2005). Therefore, this criteria is met.
- Overall area of the site/current representation of the specialized habitat – Based on satellite imagery, there are several large contiguous areas of grassland present within the regional area; therefore, this site does not represent a large proportion of these lands within the planning area. As a result, this criteria is not met.
- Amount of vertical stratification of site – No vertical stratification was noted during the site investigation within the Project location. Therefore, this criteria is not met.
- Degree of disturbance – The Project location is primarily row crop agricultural, and hayfields that are harvested annually, and not in an early stage of succession. Therefore, this criteria is not met.
- Amount of adjacent residential development – The amount of adjacent residential development is minimal, and therefore this criteria is met.
- Provision of significant wildlife habitat – No other significant wildlife habitats are identified, therefore, this criteria is not met as several significant wildlife habitats were not noted.
- Potential for long-term protection of the site – The site is located on private land, and therefore, long-term protection of the feature cannot be assured.

Though two of the criteria are met, these criteria simply apply to the presence of the species and adjacent development, and do not truly provide an indication as to the overall value of the Project location and lands within 120 m to Savannah Sparrow. Based on the abundance of this habitat type in the area and the level of disturbance present within the suitable habitat, this feature is determined to not meet the criteria for significance.

4.4.3 Animal Movement Corridors

Potential animal movement corridors were identified in the hedgerows on and within 120 m of the Project location, and the watercourse on and within 120 m of the Project location.

Evaluation methodology of animal movement corridors is identified within Section 8.7 of the SWHTG. The criteria for significance are outlined in Table Q-4 of Appendix Q in the SWHTG, and include

- importance of areas to be linked by corridor – areas linking critical habitats/significant areas
- importance of corridor to survival of target species – corridors linking significant or critical habitat for a target species
- dimensions of corridor – most significant corridors should be at least 200 m wide
- continuity of corridor – corridor should be unbroken
- habitat and habitat structure of corridor – corridor with several layers of vegetation and other structures, such as watercourses
- species found in corridor or presumed to be using corridor – corridors with high species diversity are significant
- risk of mortality for species using corridor – corridors with low risk of road kills or adjacent to residential areas
- opportunity for protection – corridors within areas that may be protected, such as undeveloped shorelines or borders of conservation areas
- provision of other related values (such as erosion protection).

The hedgerows and watercourses are discussed separately below.

- Hedgerow A (less than 5 m from access road to WTG 2, approximately 20 m from WTG 2, and approximately 60 m from crane pad for WTG 2) – This hedgerow consists of tall grasses with occasional shrubs. This corridor does not link any significant natural areas, or critical habitats. The corridor is approximately 2 m wide, though it is unbroken. There is limited habitat structure within the corridor, and presumed use is restricted to passerines, small mammals, and snakes. There is limited risk of mortality to species using the corridor, through protection of the feature cannot be assured. The hedgerow does not provide other benefits. As a result, the hedgerow is not considered to be a significant animal movement corridor based on structure of the feature and limited ecological benefit.
- Hedgerow B (the turbine blades of WTG5 overlap the hedgerow, the hedgerow is also approximately 30 m from crane pad for WTG 5, and 35 m from access road for WTG 5) – This hedgerow consists of tall grasses with scattered pockets of shrubs and immature trees, often spaced several metres apart. This corridor does not link any significant natural areas, or critical habitats. The corridor is approximately 2 m wide, though it is unbroken. There is limited habitat structure within the corridor, and presumed use is restricted to passerines, small mammals, and snakes. There is limited risk of mortality to species using the corridor, through protection of the feature cannot be assured. The hedgerow does not provide other benefits. As a result, the hedgerow is not considered to be a significant animal movement corridor based on structure of the feature and limited ecological benefit.

- Hedgerow C (approximately 30 m from access road and crane pad of WTG 4, and approximately 0 m from WTG 4) – This hedgerow consists of tall grasses with occasional shrubs. Though the records review identified this hedgerow occurring west of the Woodland which crosses the feature, the results of the site investigation determined that the hedgerow community in this area had been recently removed. Though this corridor is connected to the significant woodland, it does not connect to other significant natural features or areas that may provide critical habitats for species that may also use the woodland. The corridor is approximately 2 m wide, though it is unbroken. There is limited habitat structure within the corridor, and presumed use is restricted to passerines, small mammals, and snakes. There is limited risk of mortality to species using the corridor, through protection of the feature cannot be assured. The hedgerow does not provide other benefits. As a result, the hedgerow is not considered to be a significant animal movement corridor based on structure of the feature and limited ecological benefit.

- Hedgerow D (approximately 25 m from WTG 4, approximately 5 m from crane pad for WTG 4, and less than 5 m from access road for WTG) – The hedgerow community consists of a mixture of more mature and immature vegetation, with the northern and southern extents consisting of a single row of scattered immature maple, with shrub species, such as sumac (*Rhus typhina*), within the understorey. The central portion of the hedgerow, consists of mature planted trees with natural growth of additional tree species now occurring around the original planted locations. This portion of the hedgerow is dominated by Red Maple (*Acer rubrum*), Basswood (*Tilia american*) and Black Ash (*Fraxinus nigra*). Many of the trees within this portion of the hedgerow were described as mature, though there were no standing hollow trees present within the community within 120 m of the Project location on May 11, 2011. Along the edge of this portion of the hedgerow, sumac (*Rhus typhina*) is predominant, becoming more abundant as the hedgerow thins to a single tree depth. Wild grape (*Vitis* sp.), goldenrods (*Solidago* sp.) and raspberries (*Rubus* sp.) were also noted within this portion of the hedgerow. There is an excavated drainage ditch located along the western edge of much of the southern portion of the hedgerow. This drainage ditch had been recently cleaned out at the time of the site investigation, and as a result, contained no vegetation structure for wildlife species. Though this corridor is connected to Hedgerow C, a non-significant animal movement corridor, it is not connected to any other significant natural features or areas that may provide critical habitats. The corridor varies in width from 5 to 25 m wide, though it is unbroken. There is limited risk of mortality to species using the corridor, through protection of the feature cannot be assured. Deer tracks were noted along the corridor, while Chipping Sparrow and American Goldfinch were observed flying along the corridor during the site visit in 2011. The corridor would also provide some erosion protection to the drainage ditch. Given that the animal movement corridor is not connected to either significant natural features or critical wildlife habitats, this feature is not considered to be a significant animal movement corridor.

- Peet's Drain (crossed by access road to WTG 2) – This drain (see Figure 4.1) may provide for movement of reptiles and amphibians within the area, however though critical habitat features for these species are ultimately found downstream of the Project location, there are no critical habitat features present within 120 m of the Project location or upstream. As a result, though portions of the drain located downstream of the Project location may be of significance in terms of animal movement, that found present on and within 120 m of the Project location are not.

Figure 4.1 Peets Drain on the Project Location

4.4.4 Overall Determination of Significance

Based on the evaluation of significance identified above, there are no significant wildlife habitat features present on or within 120 m of the Project location.

5. Conclusions

This report has been completed in accordance with the requirements of Sections 24 to 28 of the REA Regulation.

As discussed above, no significant natural features were identified through the Natural Heritage Assessment (Records Review, Site Investigation, Evaluation of Significance). As a result, an Environmental Impact Study is not required for the Gesner Wind Energy Project.

6. References

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Appendix A

Natural Heritage Information

(See Appendix C of Main Report)

Appendix B

Field Data

(See Appendix G of Main Report)

Suite 500, 4342 Queen Street
Niagara Falls, Ontario, Canada L2E 7J7
Tel 905 374 5200 ◆ Fax 905 374 1157

Appendix I

Post-Construction Monitoring Plan

HATCH™

Saturn Power Inc.

Post-Construction Monitoring Plan

Gesner Wind Energy Project

H328628-0000-07-124-0007
Rev. 0
November 30, 2010

Saturn Power Inc.

Post-Construction Monitoring Plan

Gesner Wind Energy Project

H328628-0000-07-124-0007
Rev. 0
November 30, 2010

Project Report

November 30, 2010

Saturn Power Inc.

Gesner Wind Energy Project

Post-Construction Monitoring Plan

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1. Introduction

1.1 Project Description

Saturn Power Inc. ("Saturn") is proposing to build the 10-megawatt (MW) Gesner Wind Energy Project (the "Project") southeast of Highgate, in the Municipality of Chatham-Kent, in southwestern Ontario (Figure 1.1). The wind energy project will be located approximately 10 km inland from the northwestern shore of Lake Erie. The 10-MW project will consist of five 2-MW wind turbine generators (WTGs), and is considered to be a Class 3 wind facility (according to Ontario Regulation (O. Reg.) 359/09).

Post-construction monitoring is required for all Class 3 wind facilities. This report details the proposed post-construction monitoring plan for the Project. Information obtained from this phase of monitoring serves to verify predicted operational impacts, such as by determining the corrected mortality estimates, and also serves to evaluate the effectiveness of implemented mitigation measures, if required. Mortality estimates are impacted by two variables. Searcher efficiency or the number of carcasses identified by the various searchers, which will vary with visibility (e.g., visibility class) and between individuals. Additionally, the removal of the carcasses by scavengers, or carcasses removal rate will vary depending on location and visibility.

This report describes the post-construction monitoring methods including scavenger efficiency trials, corrected mortality estimates and searcher efficiency trials, thresholds for triggering mitigation, and proposed mitigation measures, if required. As well, reporting methodology and frequency are described.

1.2 Guidance Documents

Specific guidelines for post-construction monitoring are laid out in the following provincial and federal guidance documents:

- Provincial (Ministry of Natural Resources)
  - *Birds and Bird Habitat – Guidelines for Wind Power Projects* (MNR, 2010a)
  - *Bat and Bat Habitats – Guidelines for Wind Power Projects* (MNR, 2010b)
- Federal (Environment Canada/Canadian Wildlife Service)
  - *Wind Turbines and Birds – A Guidance Document for Environmental Assessment* (EC/CWS, 2007a)
  - *Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds* (EC/CWS, 2007b).

Taylor Pond, Life Science Site/
Provincially Significant Wetland

Muirkirk Line

Rock Pile 1

WTG 1

WTG 5

WTG 2

WTG 3

WTG 4

HEDGEROW B

PEETS DRAIN

HEDGEROW A

Gesner Line

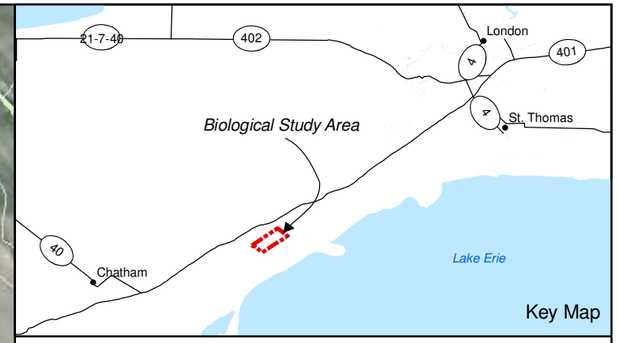
Sweitzer Line

MacPherson Road

HEDGEROW D

HEDGEROW C

Rock Pile 2



Legend

Project Components

- Wind Turbines (110 m Diameter)
- Crane Pad
- Access Road (9 m Width)
- 120 m from Project Components

Natural Features

- Biological Study Area
- Wetlands
- Woodland
- Hedgerow

Notes:
1. Base data downloaded from www.geographynetwork.ca
NRVIS data from MNR LIO.
2. Spatial referencing UTM NAD 83
3. Satellite imagery from Google Earth Pro.

0 50 100 200
Metres
1:10,000

NORTH

Figure 1.1
Saturn Power Inc.
Gesner Wind Energy Project
Project Location in Relation to Natural Features

HATCH

P:\SATURN\328628\GIS\Turbinelocations_29Apr11.mxd

2. Post-Construction Monitoring Methods

The following documents the methods for post-construction monitoring for mortality searches and disturbance effects monitoring.

2.1 Disturbance Effects Monitoring

As the project is not located on or within 120 m of Significant Wildlife Habitat for birds, there are no disturbance effects monitoring proposed (MNR, 2010a).

Disturbance effects monitoring are not required for bat populations (MNR, 2010b).

2.2 Mortality Monitoring

The following details the proposed program for mortality searches:

- 3 years of mortality monitoring following construction of the Project (as required by MNR, 2010a/2010b). This may be extended if significant bird or bat mortality is recorded (see Section 3.1), or additional mitigation measures are implemented (see Sections 3.2 and 3.3).
- The specific individuals conducting the monitoring remains to be determined, however monitoring will be overseen by a person qualified in the identification of bird and bat species.
- As there are less than 10 turbines associated with the Project, monitoring will be conducted at all wind turbines (as required by MNR, 2010 a/2010b)
- Turbines will be searched twice per week (every 3 to 4 days) concurrently for both birds and bats, except where otherwise noted, during the following periods:
  - Early spring (March through April) – 5 weeks total. Searches to correspond with timing of early spring migration (EC/CWS, 2007b)
  - Late spring/summer/fall (May through October) – continuous. Surveys required for bats from May through September (MNR, 2010b), while surveys are required for birds from May through October (EC/CWS, 2007b; MNR, 2010a).
  - Late fall (November) – 4 weeks total. Surveys conducted once per week for raptors (MNR, 2010a).
- The methodologies for the searches are outlined below:
  - Weather conditions will be noted during each survey and documented. If adverse weather conditions are encountered on the day of the proposed survey that would prevent the survey from being completed, the survey will be postponed until the next available day with favourable weather conditions.
  - All carcasses will be photographed.
  - Searches conducted using grid transects of 5 to 6 m apart and will cover to a maximum of 50 m from the base of the turbine.
  - The data collected is to include the following:

- species
- sex
- date
- time
- location
- carcass condition (e.g., intact or scavenged)
- searcher
- any injuries
- distance to nearest wind turbine
- ground cover (including visibility class)
- estimated number of days since death and,
- distance to plot centre.

- GIS coordinates will be determined at the start of post-construction monitoring, to delineate the 50 m search area, and once per month to delineate the extent of the search area within each visibility class (see below).
- The area searched will consist of the gravel pad at the base of the turbine, roads extending from it, and any areas of ground nearby that are either covered with short vegetation or are bare. In respect of these other areas of ground:
  - As turbines are to be placed in agricultural lands that will remain in active production, the full 50 m radius circle extending from the base of the turbine is expected to be capable of being searched for a portion of the year, (spring and fall). It is expected that visibility will vary with Class 1 (>90% bare ground with <15 cm tall vegetation) being present for both the spring and fall, and Class 2 (>25% bare ground <15 cm tall vegetation) to Class 3 (<25% bare ground, >30 cm tall vegetation) being present during the summer (corresponding to the crop growing season).
  - Once completed, the percentage of area searched (a correction factor), is calculated as outlined by MNR (2010a, 2010b), where percent of area searched = actual area searched/ π $(50)^2$

Once surveys are complete, the minimum estimated bird and bat mortality is calculated following the formulas, with correction factors, as outlined by MNR (2010a, 2010b). These calculations being

- Corrected Mortality Estimates (C) = number of carcasses found/ (Searcher Efficiency x Carcass Removal x percentage of area search).

2.3 Control Trials

In order to account for variations in searcher efficiency and carcass removal, trials are required in order to determine the correction factors that need to be applied to the estimate of bird and bat mortality (as outlined by MNR 2010a and 2010b).

Both bird and bat carcasses will be used for these trials[1]. As these trials will commence at the start of the monitoring period, carcasses will be obtained from an external source to permit trials. During operations, carcasses will be collected from the Project site and kept in a freezer for use in later trials. If no bat carcasses are available, carcasses of small brown mammals will be used.

2.3.1 Searcher Efficiency Trials

The efficiency of each searcher will vary. To adequately adjust for this variability a blind test will be conducted on each searcher, as outlined below:

- Each searcher will be tested at least once per season (i.e., spring – May/June, summer – July/August, fall – September/October) , or once a month if the vegetation community changes within the survey area such that the visibility class changes.
- 10 to 20 trial carcasses of both birds and bats per searcher per visibility class are to be used across the entire season (i.e., the trial period) and not in a single event in order to minimize the potential that the observer recognizes that a test is underway. Note: If no bat carcasses are available, carcasses of small brown mammals will be used.
- The tester will ensure that the participants are unaware of this test.
- Carcasses to be marked with a blacklight pen, or tissue clips or other such means that would not be detected by the observer, and placed the evening before a search day across the range of visibility classes within the search area. If blacklight pens are used, then every carcass will be checked following completion of that day's surveys.
- Carcasses will be thawed prior to placement. They will be handled with gloves and stored in a cooler during transport.
- Any carcasses missed during the survey will then be retrieved following the carcass search.

Once completed, the searcher efficiency correction factor is calculated as outlined by MNR (2010a, 2010b). This calculations being

- Se = number of test carcasses found/ (number of test carcasses placed – number of test carcasses scavenged).

[1] The following species of bats will not be used during searcher efficiency and carcass removal trials because of White-nose Syndrome contamination risks (MNR, 2010b):

- *Myotis septentrionalis*
- *Myotis lucifugus*
- *Myotis leibii*
- *Perimyotis subflavus*
- *Eptesicus fuscus.*

A weighted average (considering the efficiency at each turbine location) is calculated by

- Overall Efficiency of searcher (Se_0) = Se_1 (number of turbines searched by searcher/total number of turbines) + Se_2 (number of turbines searched by searcher/total number of turbines) + …

2.3.2 Carcass Removal Trials

The rate of removal of the carcasses (i.e., scavenger removal) will vary depending on turbine location and season. In order to control for this variability, control trials will be conducted as outlined below.

- Trials to occur once each month (March through October) for bats and birds (EC/CWS, 2007b; MNR, 2010a/2010b).
- Weather conditions during the trial will be recorded.
- Carcasses will be checked twice per week during mortality searches (see Section 2.2).
- 10 to 20 trial carcasses of both birds and bats, with at least one third of all bat carcasses being bats, are to be used for each trial.
- Carcasses will be marked by tissue clips, then placed prior to the start of searches across the range of visibility classes within the search area. Carcasses are then monitored during carcass searches to determine if scavenged, continuing until all the carcasses have been removed or have sufficiently decomposed (generally 2 weeks).
- Carcasses will be thawed prior to placement. They will be handled with gloves and stored in a cooler during transport.

Once completed, the carcass removal correction factor is calculated as outlined by MNR (2010a, 2010b). This calculation being

- Sc = number of carcasses that remain on site visit 1 + number of carcasses that remain on site visit 2 + number of carcasses that remain on site visit 3/ (total number of carcasses + number of carcasses that remain on site visit 1 + number of carcasses that remain on site visit 2).

2.4 Reporting

The results of monitoring surveys, including raw data, will be provided to Environment Canada/Ministry of the Environment in an annual Environmental Effects Monitoring Report (MNR, 2010a/2010b) every December.

This report will detail the findings of the monitoring trials as outlined throughout this report. Fatalities will be measured by fatalities/turbine/year.

Regular contact will be maintained with the relevant agencies throughout the monitoring period, and if any single mortality event threshold are observed these will be reported immediately.

2.4.1 Species at Risk Reporting

If a carcass of a species listed as Endangered or Threatened under the *Endangered Species Act, 2007* (*ESA*) or the *Species at Risk Act (SARA)* is identified during the course of monitoring MNR Aylmer District Species at Risk biologists and/or EC will be notified within 24 hours of the observation. A permit under ESA or SARA will be required for possession and transportation of any carcass of a

species listed as Endangered or Threatened under ESA or SARA. If no permit is presently available, carcasses will remain in place and MNR/EC notified of exact locations for collection.

3. Operational Mitigation

If during the surveys, threshold mortality events or significant annual bird or raptor mortality events are identified, then operational mitigation will be implemented.

This section outlines the mortality thresholds and mitigation measures for birds and bats.

3.1 Mortality Thresholds for Birds and Bats

Table 3.1 provides the significant mortality thresholds for birds and bats in both annual and single event.

Table 3.1 Mortality Thresholds

Species	Threshold	
	Annual (i.e., all surveys combined)	**Single Event (i.e., during one survey date)**
Birds	Any one of the following: • 18 birds/turbine/year • 0.2 raptors (all species)/ turbine/year • 0.1 raptors (species of conservation concern)/turbine/ year • 2 raptors/entire wind energy project/year	Any one of the following: • 10 birds at any one turbine • 33 or more birds (including raptors) at multiple locations
Bats	10 (bats/turbine/year)	None Specified

If the mortality thresholds outlined in Table 3.1 are achieved

- an additional 2 years of mortality monitoring from the date of the significant event will be required
- for bats, operational mitigation (see Section 3.2) will be implemented from July 15 through September 30 from sunset to sunrise for the duration of the Project
- for birds:
  - operation mitigation (Section 3.3) may be implemented during the high risk seasons
  - 2 years of disturbance effects monitoring at any turbine (including those in close proximity) at which significant mortality was observed
- following implementation of operational mitigation, if required, an additional 3 years of effectiveness mortality monitoring is required.

3.2 Mitigation Measures for Bats

If mortality thresholds outlined in Table 3.1 are achieved, operational mitigation is required for bats as follows:

- changing the wind turbine cut-in speed to 5.5 m/s, or
- feathering of the wind turbine blades when wind speeds are below 5.5 m/s.

Operational mitigation measures must be employed from sunset to sunrise, from July 15 through September 30 for the duration of the Project.

3.3 Mitigation Measures for Birds

If mortality thresholds outlined in Table 3.1 are achieved, operational mitigation during periods of higher mortality risk may be required for birds as follows:

- shutdown of specific turbines
- feathering of blades.

4. Conclusion

The post-construction monitoring plan outlined herein is designed to meet the information requirements of both federal and provincial regulatory agencies.

Information collected during the post-construction monitoring will enable a determination of whether significant bird or bat mortality events are occurring.

5. References

Environment Canada, Canadian Wildlife Service. 2007a. Wind Turbines and Birds – A Guidance Document for Environmental Assessment. 51 p.

Environment Canada, Canadian Wildlife Service. 2007b. Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds. 33 p.

Ministry of Natural Resources. 2010a. Birds and Bird Habitats – Guidelines for Wind Power Projects. 32 p.

Ministry of Natural Resources. 2010b. Bats and Bat Habitats – Guidelines for Wind Power Projects. 25 p.

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Tel 905 374 5200 ◆ Fax 905 374 1157

Appendix J

Confirmation Letters

Ministry of
Natural Resources
615 John Street North
Aylmer ON N5H 2S8
Tel: 519-773-9241
Fax: 519-773-9014

Ministère des
Richesses naturelles
615, rue John Nord
Aylmer ON N5H 2S8
Tél: 519-773-9241
Téléc: 519-773-9014

Ontario

January 10, 2011

Ray Roth, General Manager
Saturn Power Inc.
Box 6087
New Hamburg, ON N3A 2K6

To Mr. Roth:

In accordance with the Ministry of the Environment's (MOE's) Renewable Energy Approvals (REA) Regulation (O.Reg.359/09), the Ministry of Natural Resources (MNR) has reviewed the natural heritage assessment and environmental impact study for Gesner Wind Energy Project in the Community of Howard, Municipality of Chatham-Kent submitted by Saturn Power Inc. on December 15, 2010.

In accordance with Section 28(2) and 38(2)(b) of the REA regulation, MNR provides the following confirmations following review of the natural heritage assessment (NHA):

1. The MNR confirms that the determination of the existence of natural features and the boundaries of natural features was made using applicable evaluation criteria or procedures established or accepted by MNR.
2. The MNR confirms that the site investigation and records review were conducted using applicable evaluation criteria or procedures established or accepted by MNR, if no natural features were identified.
3. The MNR confirms that the evaluation of the significance or provincial significance of the natural features was conducted using applicable evaluation criteria or procedures established or accepted by MNR.
4. The MNR confirms that the project location is not in a provincial park or conservation reserve.
5. The MNR confirms that the environmental impact assessment report has been prepared in accordance with procedures established by the MNR.

In addition to the NHA, Environmental Effects Monitoring Plans that address post-construction monitoring and mitigation for birds and bats must be prepared and implemented. MNR acknowledges that the post-construction monitoring plan for Gesner Wind Energy Project submitted December 1, 2010 has been prepared in accordance with MNR Guidelines and has been reviewed and approved by MNR.

This confirmation letter is valid for the project as proposed in the natural heritage assessment and environmental impact study, including those sections describing the Environmental Effects Monitoring Plan and Construction Plan Report. Should any changes be made to the proposed project that would alter the NHA, MNR may need to undertake additional review of the NHA.

Where specific commitments have been made by the applicant in the NHA with respect to project design, construction, rehabilitation, operation, mitigation, or monitoring, MNR expects that these commitments will be considered in MOE's Renewable Energy Approval decision and, if approved, be implemented by the applicant.

In accordance with S.12 (1) of the Renewable Energy Approvals Regulation, this letter must be included as part of your application submitted to the MOE for a Renewable Energy Approval.

If you wish to discuss any part of this confirmation, please contact Heather Riddell, A/Planning Ecologist at 519-773-4723 or at heather.riddell@ontario.ca.

Sincerely,

M Wilson

Mitch Wilson
District Manager
Aylmer District MNR

cc. Jim Beal, Renewable Energy Provincial Field Program Coordinator, Regional Operations Division, MNR
Narren Santos, Environmental Assessment and Approvals Branch, MOE
Rebecca Dixon, A/Southern Region Renewable Energy Coordinator, MNR
Sean Male, REA Coordinator, Hatch

Ministry of Tourism and Culture
Culture Programs Unit
Programs & Services Br.
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Fax: 519-675-7777
e-mail: shari.prowse@ontario.ca

Ministre du Tourisme et de la Culture
Unité des programmes culturels
Direction des programmes et des services
900, av. Highbury
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e-mail: shari.prowse@ontario.ca

September 17, 2010

Mr. Sean Male
Hatch
4342 Queen Street, Suite 500
Niagara Falls, Ontario
L2E 7J7

RE: Gesner Wind Energy Project, Lots 15 to 17, Concession III and IV, Orford Township, County of Kent, Ontario , RESOP 13756, MTC File HD00499, PIF # P040-330-2010

Dear Proponent:

This letter constitutes the Ministry of Tourism and Culture's written comments as required by s. 22(3)(a) of O. Reg. 359/09 under the *Environmental Protection Act* regarding archaeological assessments undertaken for the above project.

Based on the information contained in the report you have submitted for this project, the Ministry believes the archaeological assessment complies with the *Ontario Heritage Act's* licensing requirements, including the licence terms and conditions and the Ministry's 1993 Archaeological Assessment Technical Guidelines. Please note that the Ministry makes no representation or warranty as to the completeness, accuracy or quality of the Report.*

The report recommends the following:

Stage 1-2 (PIF # P040-330-2010), June 2010 (Revised September 2010)

1) Additional assessment or mitigative measures are not warranted because no significant archaeological resources were found on this property.

2) Although every reasonable effort was made to locate all archaeological resources, it is possible that some remain to be discovered within the study area. Should deeply buried archaeological material be found during construction, the Ministry of Tourism and Culture in London (519-675-6898) and Mayer Heritage Consultants Inc. in London (519-652-1818 or 800-465-9990) should be immediately notified.

3) As on virtually any property in southern Ontario, it is possible that Aboriginal or Euro-Canadian burials could be present within the study area. In the event that human remains are encountered during construction, the proponent should immediately contact both the

Ministry of Tourism and Culture, and the Cemeteries Regulation Unit of the Ontario Ministry of Consumer and Commercial Relations in Toronto (416-326-8392), as well as the appropriate municipal police, the local coroner, and Mayer Heritage Consultants Inc.

The Ministry is satisfied with these recommendations.

This letter does not waive any requirements which you may have under the *Ontario Heritage Act*. A separate letter addressing archaeological licensing obligations under the Act will be sent to the archaeologist who completed the assessment and will be copied to you.

This letter does not constitute approval of the renewable energy project. Approvals of the project may be required under other statutes and regulations. It is your responsibility to obtain any necessary approvals or licences.

Please feel free to contact me if you have questions or require additional information.

Sincerely,

Shari Prowse
Archaeology Review Officer

cc. Mr. Paul O'Neal, Mayer Heritage Consultants Inc.

---

[*] In no way will the Ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report is otherwise found to be inaccurate, incomplete, misleading or fraudulent.

Ministry of
Natural Resources
615 John Street North
Aylmer ON N5H 2S8
Tel: 519-773-9241
Fax: 519-773-9014

Ministère des
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Téléc: 519-773-9014

Ontario

May 30, 2011

Ray Roth, General Manager
Saturn Power Inc.
Box 6087
New Hamburg, ON N3A 2K6

Dear Ray Roth:

RE: Saturn Power's Gesner Wind Energy Project Natural Heritage Assessment

In accordance with the Ministry of the Environment's (MOE's) Renewable Energy Approvals (REA) Regulation (O.Reg.359/09), the Ministry of Natural Resources (MNR) has reviewed the natural heritage assessment (NHA) for Gesner Wind Energy Project in the Community of Howard, Municipality of Chatham-Kent submitted by Saturn Power Inc. on May 30, 2011.

In accordance with Section 28(2) and 38(2)(b) of the REA regulation, MNR provides the following confirmations following review of the NHA:

1. The MNR confirms that the determination of the existence of natural features and the boundaries of natural features was made using applicable evaluation criteria or procedures established or accepted by MNR.

2. The MNR confirms that the site investigation and records review were conducted using applicable evaluation criteria or procedures established or accepted by MNR, if no natural features were identified.

3. The MNR confirms that the evaluation of the significance or provincial significance of the natural features was conducted using applicable evaluation criteria or procedures established or accepted by MNR.

4. The MNR confirms that the project location is not in a provincial park or conservation reserve.

5. The MNR confirms that the project did not require an environmental impact assessment report to be prepared.

In addition to the NHA, an Environmental Effects Monitoring Plan that addresses post-construction monitoring and mitigation for birds and bats must be prepared and

...2

implemented. The MNR acknowledges that the post-construction monitoring plan for the Gesner Wind Energy Project has been prepared in accordance with MNR Guidelines and was reviewed and approved by MNR in December 2010.

This confirmation letter is valid for the project as proposed in the natural heritage assessment. Should any changes be made to the proposed project that would alter the NHA, MNR may need to undertake additional review of the NHA.

Where specific commitments have been made by the applicant in the NHA with respect to project design, construction, rehabilitation, operation, mitigation, or monitoring, MNR expects that these commitments will be considered in MOE's Renewable Energy Approval decision and, if approved, be implemented by the applicant.

In accordance with Section 12(1) of the Renewable Energy Approvals Regulation, this letter must be included as part of your application submitted to the MOE for a Renewable Energy Approval.

If you wish to discuss any part of this confirmation please contact Heather Riddell, A/Planning Ecologist at 519-773-4723 or at heather.riddell@ontario.ca.

Sincerely,

MWilson

Mitch Wilson
District Manager
Aylmer District MNR

cc. Jim Beal (MNR)
Andrea Fleischhauer (MNR)
Narren Santos (MOE)
Sean Male (Hatch)

Encl.

Ministry of Tourism and Culture
Culture Programs Unit
Programs & Services Br.
900 Highbury Avenue
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Tel: 519-675-6898
Fax: 519-675-7777
e-mail: shari.prowse@ontario.ca

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Ontario

June 30, 2011

Mr. Sean Male
Hatch
4342 Queen Street, Suite 500
Niagara Falls, Ontario
L2E 7J7

RE: Gesner Wind Energy Project, Lots 15 to 17, Concession III and IV, Orford Township, County of Kent, Ontario, RESOP 13756, MTC File HD00499, PIF # P040-330-2010 and P066-105-2011

Dear Proponent:

This letter constitutes the Ministry of Tourism and Culture's written comments as required by s. 22(3)(a) of O. Reg. 359/09 under the *Environmental Protection Act* regarding archaeological assessments undertaken for the above project.

Based on the information contained in the report(s) you have submitted for this project, the Ministry believes the archaeological assessment complies with the *Ontario Heritage Act's* licensing requirements, including the licence terms and conditions and the Ministry's 1993 Archaeological Assessment Technical Guidelines or the 2011 Standards and Guidelines for Consultant Archaeologists (whichever apply). Please note that the Ministry makes no representation or warranty as to the completeness, accuracy or quality of the Report(s).*

The report recommends the following:

Stage 1-2 (PIF # P040-330-2010), June 2010 (Revised September 2010)

1) Additional assessment or mitigative measures are not warranted because no significant archaeological resources were found on this property.

2) Although every reasonable effort was made to locate all archaeological resources, it is possible that some remain to be discovered within the study area. Should deeply buried archaeological material be found during construction, the Ministry of Tourism and Culture in London (519-675-6898) and Mayer Heritage Consultants Inc. in London (519-652-1818 or 800-465-9990) should be immediately notified.

3) As on virtually any property in southern Ontario, it is possible that Aboriginal or Euro-

Canadian burials could be present within the study area. In the event that human remains are encountered during construction, the proponent should immediately contact both the Ministry of Tourism and Culture, and the Cemeteries Regulation Unit of the Ontario Ministry of Consumer and Commercial Relations in Toronto (416-326-8392), as well as the appropriate municipal police, the local coroner, and Mayer Heritage Consultants Inc.

Stage 1-2 (PIF # P066-105-2011), May 26, 2011 (Revised Report Received June 24, 2011)

1. Additional assessment or mitigative measures are not warranted for the Gesner Wind Energy Project because no archaeological resources were found during the Stage 2 survey. The Ministry of Culture is requested to issue a letter stating that no further archaeological assessment of the property is required.

The Ministry is satisfied with these recommendations.

This letter does not waive any requirements which you may have under the *Ontario Heritage Act*. A separate letter addressing archaeological licensing obligations under the Act will be sent to the archaeologist who completed the assessment and will be copied to you.

This letter does not constitute approval of the renewable energy project. Approvals of the project may be required under other statutes and regulations. It is your responsibility to obtain any necessary approvals or licences.

Please feel free to contact me if you have questions or require additional information.

Sincerely,

Shari Prowse
Archaeology Review Officer

cc. Mrs. Kristy O'Neal, Mayer Heritage Consultants Inc.
Mr. Paul O'Neal, Mayer Heritage Consultants Inc.

[*]In no way will the Ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report is otherwise found to be inaccurate, incomplete, misleading or fraudulent.

Appendix K

Project Description Report

HATCH™

Saturn Power Inc.

REA Draft Project Description Report

Gesner Wind Energy Project

H328628-0000-07-124-0003
Rev. A
March 2010

Project Report

March 22, 2010

Saturn Power Inc.

Gesner Wind Energy Project

DISTRIBUTION

Joe deLaronde, Aboriginal Affairs Branch
Ontario Ministry of Environment
Sandra Guido, Environmental Assessment
and Approvals Branch
Ontario Ministry of Environment
Craig Newton –
Ontario Ministry of Environment
Mitch Wilson, District Manager,
Ontario Ministry of Natural Resources
Joe Pavelka, CAO
Municipality of Chatham-Kent
Joanne Groch, Administrator/Treasurer
Municipality of West Elgin
Chief Joseph Gilbert and Council –
Walpole Island First Nation
Chief Gregory Peters and Council –
Moravian of the Thames First Nation

REA Draft Project Description Report

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1. General Renewable Energy Project Information

This Draft Project Description Report (PDR) is prepared for the Director, Environmental Assessment and Approvals Branch (EAAB) of the Ontario Ministry of Environment (MOE) as a requirement of the Renewable Energy Approvals (REA) process described in Ontario Regulation 359/09 under the Ontario Environmental Assessment Act.

The following table provides a summary of the PDR requirements as per Section 10 of Table 1 of the Regulation and the corresponding section where each requirement is described in further detail in this report.

Table 1.1 PDR Requirements

	Description Requirement as per Section 10 of Table 1 (O.Reg. 359/09)	Summary
1	Any energy sources to be used to generate electricity at the renewable energy generation facility	Wind (see Section 2)
2	The facilities, equipment and technology that will be used to convert the renewable energy source or any other energy source to electricity	5 (five) Gamesa G90-2 MW wind turbine generators manufactured by Gamesa, internal electrical interconnection network, substation (see Section 3)
3	If applicable, the class of the renewable energy facility	Wind - Class 4 (see Section 4)
4	The activities that will be engaged in as part of the renewable energy project	(see Section 5)
5	The nameplate capacity of the renewable energy generation facility	10 MW (see Section 6)
6	The ownership of the land on which the project location is to be situated	(see Section 7)
7	Any negative environmental effects that may result from engaging in the project	(see Section 8)
8	An unbound, legible and reproducible project location map on a 215 x 280 mm page showing land within 300 m of project	(see unbound project location map, also shown in Figure 1)

This Project Description Report will also be made available to the Ontario Ministry of Natural Resources (MNR) and to the list of aboriginal communities that will be provided to Hatch by the Director of the EAAB.

1.1 Project Location

The study area is southeast of the Highgate community within the Municipality of Chatham-Kent and includes the smaller hamlets of Duart and Muirkirk. The study area (see Figure 1) is bounded in the east by Elgin County and has an area of ~20 km^2 or 2000 ha.

The proposed location for the wind turbines covers a total area of ~233 ha. The study area includes the wind turbine sites (as shown in Figure 2) and the surrounding areas that may potentially be

affected by construction and/or operation of the facility. The study area is approximately located within the following geographic coordinates NAD 83 latitude, longitude:

- Northern Limit 42° 32' 6" N, 81° 44' 42" W
- Eastern Limit 42° 30' 55" N, 81° 43' 16" W
- Southern Limit 42° 28' 41" N, 81° 47' 2" W
- Western Limit 42° 29' 38" N, 81° 48' 22" W.

1.2 Background Information

The environmental assessment process for this project began in 2008 under the provincial Electricity Projects Regulation (O.Reg. 116/01) of the Ontario Environmental Assessment Act (the Notice of Commencement published on March 26, 2008 and all field work for the project was completed by fall 2008). The project has not completed the environmental screening process under O.Reg. 116/01, therefore the project must now transition into compliance with the requirements of O.Reg. 359/09.

The project has an executed Renewable Energy Standard Offer Program (RESOP) agreement with OPA since June 2008 (OPA application# RESOP-13756).

The project is located entirely on private land that has been acquired by Saturn Power Inc.

1.3 Consultation Process to Date

The stakeholder consultation carried out to date have included the entities (government agencies, groups and organizations) listed in Table 1.2. Details on First Nations consultation activities carried out to date are presented in Table 1.3.

Table 1.2 Government Agencies and Organizations Contacted to Date

Federal Agencies
Canadian Environmental Assessment Agency
Transport Canada
Natural Resources Canada
Indian and Northern Affairs Canada
Health Canada
Fisheries and Oceans Canada
Environment Canada
Navigation Canada
MP – Chatham-Kent-Essex
Provincial Agencies
Ministry of Natural Resources
Ministry of the Environment
Ministry of Culture
Ministry of Aboriginal Affairs
Ministry of the Attorney General
Ministry of Transportation
Ministry of Energy and Infrastructure
MPP – Chatham-Kent-Essex
Ministry of Community and Social Services

Municipal Agencies
Town of Highgate
Town of Ridgetown
County of Elgin
Municipality of Chatham-Kent
Municipality of West Elgin
Potential Stakeholders
Chatham-Kent Camber of Commerce
Ridgetown Chamber of Commerce
Ontario Energy Association
Lower Thames Valley Conservation Authority
Chatham-Kent Economic Development Services
Jack Miner Migratory Bird Foundation
Friends of Rondeau Provincial Park

Table 1.3 First Nations Consultation Activities to Date

Date	Consultation Activity
March 19, 2008	Notice of Commencement was sent to the Delaware Nation (Moravian of the Thames), INAC and the Ministry of Aboriginal Affairs.
March 31, 2008	The Comprehensive Claims Branch of INAC confirmed that there are no comprehensive claims in the Project area.
April 7, 2008	The Ministry of Aboriginal Affairs (MAA) stated that the Project does not appear to be located in an area where existing or asserted rights by First Nations would be impacted by the Project. The MAA did state that the Delaware Nation (Moravian of the Thames) may be interested in the Project given the proximity of their community or reserve lands to the proposed Project.
April 15, 2008	In response to the April 7, 2008 reply to the NOC from the MAA, additional NOC letters were sent to Kevin Clement and Fred Hosking of INAC.
June 16, 2008	The Litigation Management and Resolution Branch of INAC advised that their inventory includes active litigation in the vicinity of the Project. Walpole island First Nation was contacted regarding the Project to determine any potential interest in the Project or study areas. It was also determined that the area of interest with respect to the claim is located approximately 70 km from the Project area, near Wallaceburg. Given this distance, it is likely that this action has a negligible effect on lands in the vicinity of the Project.
September 17, 2008	A copy of the Notice of Public Information Centre and a stakeholder letter were sent to the Delaware Nation (Moravian of the Thames) and related agency contacts.
October 1, 2008	The Public Information Centre for the Project was held on October 1, 2008. The sign-in sheet did not reflect attendance by any First Nation members or related agencies.
November 27, 2008	The Walpole Island First Nation was identified to be a potentially interested First Nation in the vicinity of the Project following correspondence with INAC. A copy of the NOC letter was sent to this First Nation along with a copy of the published notice, as well as the PIC display boards presented on October 1, 2008.

Date	Consultation Activity
August 27, 2009	A telephone call was made to Moravian of the Thames First Nation. Hatch was directed to call the following day.
August 28, 2009	As per the request above, a telephone call was made to the Moravian of the Thames First Nation. Hatch was directed to send the NOC and PIC material via Email for review by the First Nation. This information was sent the same day.
August 28, 2009	Following a request made via telephone conversation with the Walpole Island First Nation, the NOC and PIC materials were sent via email.
September 3, 2009	A telephone call was placed by Hatch to follow-up on materials sent. A voice message was left.
September 3, 2009	As a follow-up to the package sent to Walpole Island First Nation, Hatch placed a phone call to the First Nation and was referred to William Big Bull, a consultant to the First Nation charged with addressing issues related to all wind Projects in the vicinity of the First Nation. William Big Bull requested that the package sent via email on August 28, 2009 be resent to him. This information was sent the same day.

The Moravian of the Thames First Nation reserve, Moravian 47, is located 56 km southwest of Sarnia on the Thames River. The registered population was 370 people in 2001 with a median age of 27.4 (INAC, 2008). The study area is located ~10 km southeast of the Moravian 47 reserve, southwest of Highway 401.

The Walpole Island First Nation reserve, Walpole Island 46, is located 34 km south of Sarnia Island in Lake St. Clair at the mouth of the St. Clair River. The registered population was 4233 people as of October 2009 with a median age of 27.2 as of 1996 (INAC, 2008). The study area is located ~50 km east of the Walpole Island 46 reserve.

A Public Information Centre was held on October 1, 2008 at the Highgate Town Hall, 291 King St., Highgate, Ontario. The PIC was open from 5:00 p.m. to 8:00 p.m. and display boards were set up to provide information regarding the project. Representatives from Hatch and Saturn Power were on hand to provide information and answer questions.

The following information was provided during the information centre:

- a preliminary description of the Project components
- maps illustrating the Study area
- presentation boards showing a preliminary Project layout
- a description of studies completed for assessment of effects of the Project
- comment sheets providing opportunity for public comment on the Project and identification of issues or concerns
- information on Saturn Power.

According to the sign-in sheets, 23 people signed in to the PIC. Comment sheets were offered to all those present as a means of providing comments and/or identifying concerns. Seven comment sheets were completed during/following the Information Centre on October 1, 2008.

1.4 Project Contacts

Saturn Power Inc. (Saturn) is an Ontario-based company that develops wind power projects. Contact information for Saturn Power is as follows:

Ray Roth, General Manager
Saturn Power Inc.
Box 6087
New Hamburg, ON, N3A 2K6

Tel 226-338-4870
Fax 519-656-3414
Email ray@saturnpower.ca

Hatch has been retained by Saturn to conduct the environmental assessment process. The project contact personnel are as follows:

Environmental Assessment Coordinator
Sean Male
Hatch Ltd.
4342 Queen Street, Suite 500
Niagara Falls, ON, L2E 6W1

Tel 905-374-0701, ext 5280
Fax 905-374-1157
Email smale@hatch.ca

Project Manager
Trion Clarke
Hatch Ltd.
4342 Queen Street, Suite 500
Niagara Falls, ON, L2E 6W1

Tel 905-374-0701, ext 5298
Fax 905-374-1157
Email tclarke@hatch.ca

The Provincial Environmental Assessment Coordinator is

Sandra Guido, Senior Program Support Coordinator
Environmental Assessment and Approvals Branch
Ontario Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto ON, M4V 1L5

Tel 416-314-6802
Fax 416-314-8452
Email sandra.guido@ontario.ca

2. Description of the Renewable Energy Source

Saturn Power Inc. is proposing to build a 10-MW wind energy project southeast of Highgate in southwestern Ontario. The name and proposed location of the project is Gesner Wind Power Development near Highgate, Ontario (see attached Project Location Map in Figure 1).

The wind farm will be located approximately 10 km inland from the northwestern shore of Lake Erie. The 10-MW project will consist of five Gamesa G90-2 MW wind turbine generators, manufactured by Gamesa.

3. Renewable Energy Project Description of Facilities

3.1 Project Components/Structures

The project will involve the following major components:

- installation of a road network on the optioned lands to access and build the tower foundations and erect the wind turbine generators
- installation and operation of five 2-MW wind turbine generators within the municipality of Chatham-Kent
- installation of an underground cable network to connect the turbines
- construction of a 27.6-kV overhead line to interconnect with Hydro One Networks Inc's (HONI) 27.6-kV distribution facilities.

Construction of the wind farm will result in the temporary loss of 3 ha and the permanent loss of 1.5 to 2 ha of agricultural land. This permanently lost area would constitute ~0.85% of the total optioned land of 233 ha.

4. Class of Renewable Energy Facility

Under O.Reg. 359/09, the project is classified as a Class 4 Wind Facility, i.e. it meets the following criteria:

- the facility will be constructed at a location where no part of a wind turbine is located in direct contact with surface water other than in a wetland
- the nameplate capacity of the facility is ≥50 kW
- the greatest sound power level[1] of the proposed wind turbines is ≥102 dBA.

5. Description of Project Activities

The project activities involved in the construction, operation and decommissioning phases of the project are outlined in the following sections.

5.1 Access Road Construction

New access roads on private land will be required to allow transport of equipment and turbine parts from the main road to each turbine location. The minimum thickness of the access road granular

[1] As defined by the sound power level corresponding to 95% of the rated power of the selected wind turbine generator.

base and top course material will be at least 30 cm. One-lane width (5 m) is sufficient for transportation of turbine parts. The total length and surface area of new access roads will be determined at a later date when the turbine layout is defined. No stream crossings are anticipated for the access roads of the project.

5.2 Site Preparation and Foundation Excavation

A construction works yard/laydown area of ~100 by 100 m will be required. Surfacing of this area will be the same as for the road surface to ensure an adequate thickness for safe transport of material and use of heavy equipment. This works area will be temporary and will be removed at construction completion.

Prior to arrival of wind turbine parts on site, each wind tower foundation must be prepared. This involves levelling of an approximate 40-m diameter area at the base of each wind tower for turbine assembly and crane pads. Depending on soil characteristics, concrete foundations are expected to be ~20 to 24 m diameter and will be excavated to a depth of ~3 to 4 m. Therefore, the total amount of excavated material requiring disposal will be ~1330 m^3 for each turbine. Landowners will be consulted to determine whether fill material can be used on site. If no on-site use can be found, disposal will be at an approved off-site location. If disposal is within a floodplain, it must first be approved by Lower Thames Valley Conservation Authority.

5.3 Topsoil Conservation

Where practical, topsoil will be stripped from temporary access road locations and stored adjacent to the roads while ensuring that any drainage courses present are not blocked. When the temporary access roads are removed following completion of construction, topsoil will be replaced. If topsoil is not stripped, the agricultural crops will be left uncut or shredded and left on the soil surface over the entire working area.

5.4 Transport of Equipment and Concrete

The wind turbine generators will be purchased from Gamesa, a European manufacturer. Some of the Gamesa wind turbine generator components are manufactured at Gamesa's manufacturing plant in Pennsylvania; therefore, ocean transport of some components may be required to a nearby port. This location is to be confirmed depending on the equipment point of origin. The tower sections would then be forwarded to the site by truck. Three separate 44-m long rotor blades, as well as the nacelle, hub and associated pieces would be expected to be transported by ship. It is anticipated that the transport of equipment will be a phased process occurring over a 3-wk period.

Approximately 55 to 65 truckloads of concrete will be required to form the foundations for each tower base. Therefore, up to 325 truckloads of concrete will be needed for the five wind turbine generator foundations.

A permit will be required from Chatham-Kent, Essex and Elgin counties for transportation of overweight/oversize loads.

5.5 Underground Cable Installation

A network of underground cables will be required to connect the wind turbines. A simple trenching device can be used to install the cable, whereby a slot is opened, the cable laid, and the soil

replaced. The cable will be placed below the level of the drainage tiles. The underground cable network will not require any stream crossings.

5.6 Distribution Line Erection

A 27.6-kV distribution connection will be erected to transport generated power from the facility to the 27.6-kV connection point.

5.7 Schedule

It is estimated that the construction phase of the project will take up to 6 months. This includes preparation of the site, construction of roads and foundations, erection of the up to six wind turbines, and completion of all connections to the transmission grid. Site preparation and access road construction is scheduled to begin in spring 2010.

5.8 Wind Turbine Operation

The wind turbines will operate year round, depending on daily weather conditions. A wind speed of 3 m/s is required for the turbine to be operational ("cut-in" speed). In the case of the Gamesa G90-2-MW wind turbines, the generator reaches its maximum potential (i.e., 2 MW) at a wind speed of 15 m/s, and the rotor will stop spinning at a wind speed of 25 m/s to avoid damaging the equipment. The turbines are rated for operation in temperatures as low as -30°C, but will automatically shut down in freezing rain conditions when there is an ice load on the blades. Each rotor, with a total diameter of 90 m, will sweep an area of 6362 m^2. The turbines will be appropriately designed to perform under varying weather conditions.

5.9 Maintenance and Inspection

The turbines will typically be scheduled for preventative maintenance at 3 months after commissioning and then every 6 months thereafter. Typically, maintenance on one machine can be completed within 1 working day. All the required maintenance materials (e.g., hydraulic fluids) will be brought to the site as required so no on-site storage of this material will be necessary. The turbines will also be inspected whenever the power output is lower than anticipated as this would be indicative of a mechanical problem.

5.10 Decommissioning

A 25-yr lifespan is typically anticipated for wind turbines. At that time, turbines will be decommissioned or refurbished depending on market conditions and/or technological changes.

If the decision is to discontinue wind generation, the process would involve the following:

- removal of the scrap metal and cabling. Where possible, these materials will be recycled, with nonrecyclables taken to an approved disposal site.
- removal of concrete foundations unless the landowner requests otherwise. If the concrete is removed, it will be recycled where possible.
- site cleanup and regrading to original contours, and damage to tile drainage system to be repaired/replaced.
- planting of leguminous crops to provide a rapid return of nutrients and soil structure.

Once the towers, other materials, and road network are removed from the site, the fields will be returned to their agricultural land use.

5.11 Resource/Material Requirements

5.11.1 Energy and Water Requirements and Sources

On-site energy requirements during construction are likely to be provided by portable diesel generators. Operational outside energy requirements for the facility will be supplied via a return transmission line from the interconnection point.

Water will be required during the construction process (i.e., wash water, etc). Water supply source will be confirmed during the EA process. The quantities required are anticipated to be small and will not require a Permit to Take Water from MOE as the taking will be much less than the 50,000 L/d for diversion of water.

5.11.2 Excavations

The degree of excavation required will be based on the results of initial geotechnical and site preparation surveys. Excavation of each turbine will be completed in 1 to 2 days. Excavations will be simultaneous and ongoing, thus, facilitating a continuous construction process.

Excavation will be required for foundation construction and underground interconnection cabling. The expected quantity of excavated material is unknown at this point. This material will be reused around the site to the extent possible; though, the need will be quite limited. Excess material may be disposed in the general project area through discussion and agreement with landowners.

5.11.3 Borrow Materials

Borrow materials will be required for construction of the access roads. The amount is to be determined and the location for taking of borrow materials will be approved by MNR.

Some fill materials will be required and the use of a borrow area may be required, although commercial purchase is an option that will be investigated. Quantities are unknown at this time. The source of the material will be discussed and approved by MNR.

5.11.4 Concrete

Approximately 325 m^3 of concrete will be required for each foundation, ~20 to 24 m diameter. A temporary concrete batch plant will likely be needed on site unless there is an existing concrete batch plant presently located in close proximity to the project area.

5.11.5 Toxic/Hazardous Materials

Fuels, hydraulic fluids, and lubricants will be used in equipment during construction and operation of the facilities. The fuel storage facility will comply with all current regulations and guidelines. The storage of small amounts of hydraulic fluids and lubricants will be in a contained area, well away from any watercourse. The personnel handling toxic/hazardous materials should be trained in WHMIS and will be carried out by personnel trained in appropriate occupational health and safety practices. It is not anticipated that explosives will be manufactured on site. Explosives stored on site will be contained in a manner compliant with NRCan requirements and industry standards.

Explosives will be transported in accordance with Transport Canada requirements (e.g., Transportation of Dangerous Goods Act).

5.12 Waste Disposal

The main waste material requiring disposal will be soil/rock excavated from the foundations. The excavated material is anticipated to be free of any toxic/hazardous materials and may be disposed in the general project area through discussion and agreement with landowners.

Solid nonhazardous construction waste (e.g., material packaging) generated during the construction process will be removed from the site to an approved disposal location (likely the municipal landfill) or recycling/composting facility, if available.

5.12.1 Disposal Procedures for Toxic/Hazardous Materials

No gaseous wastes other than construction equipment emissions are anticipated. Industrial liquids such as paints, sealants, fuels, and lubricating fluids will be stored in a secure containment area and disposed in accordance with provincial liquid waste disposal regulations (e.g., Environmental Protection Act and Ontario Regulation 347).

6. Nameplate Capacity of Renewable Energy Facility

The nameplate capacity of the project is 10 MW.

7. Land Ownership

All land considered for the project has been acquired by Saturn Power Inc. No federal land will be utilized in the siting of the turbines or associated infrastructure.

8. Potential Negative Environmental Effects that may Result from Engaging in the Project

Negative environmental effects may occur as a result of construction and operation of the wind power facility. Environmental components to be examined during the environmental assessment process cover both the natural and social environments. The environmental components and the potential environmental effects of the Project are presented in Table 8.1.

As part of the renewable energy approval process for the Project, impacts to the environment will be assessed, mitigation measures developed, and appropriate construction/post-construction monitoring programs will be identified where required.

Table 8.1 Potential Environmental Effects Which May Result from Engaging in the Project

Environmental Component		Potential Environmental Effect
Natural Environment	Physiography/Topography	During construction, regrading of excavated soils and some minor alterations to local topography may occur.
	Soils	Reductions in soil quality/loss of soils as a result of accidental spills, erosion, soil compaction during construction.
	Aggregate Resources	Implementation of the Project may result in reduced aggregate resource availability in the area.
	Surface Water	Surface water quality could be impaired due to contamination or increased turbidity.
	Groundwater	Foundation excavations may result in a decrease in the local availability of groundwater due to dewatering. In addition, groundwater may also be impaired by contamination, or changes in ground water recharge.
	Aquatic Habitats/Biota	The installation of the Project may result in negative impacts to fish and fish habitat, if watercourse crossings are required.
	Wetlands	Construction of the Project could result in fragmentation of wetland habitat, creation of new swamp edges, and alterations of drainage pathways leading to the impairment of wetland function.
	Vegetation	Some vegetation clearing on agricultural land as well as within natural vegetation communities will be required.
	Terrestrial Wildlife (Birds and Bats)	Fatalities of birds and bats may occur as a result of collision with turbines (birds and bats), or pressure changes (bats) from wind turbine operation.
	Terrestrial Wildlife (Other)	Loss of wildlife habitat and potential wildlife avoidance of the project area during construction and operation as a result of disturbance.
	Air Quality	Reductions in local air quality from operation of construction equipment and dust displacement due to vehicle traffic.
Social Environment	Employment and Local Benefit	Positive direct, indirect and induced economic benefits are anticipated.
	Agricultural Land Use	Agricultural land use will be discontinued within the Project footprint.
	Tourism and Recreation	Any tourism or recreational resources existing within the immediate Project vicinity will be determined and considered in determining potential impacts.

Environmental Component		Potential Environmental Effect
	Archaeological and Cultural Heritage Resources	Excavations during Project construction may result in the discovery of Archaeological resources. Stage I and II Archaeological Assessments will be conducted to determine potential. Potential heritage resources will be determined as per the requirements of the Ministry of Culture.
	Property Values	The installation of the Project may cause property value fluctuation within the surrounding area.
	Sound Levels	Temporary disturbance to neighbouring residents may occur during construction. During operation, the Project has the potential to increase ambient sound levels.
	Visual Landscape	Installation of the Project will result in a change to the local landscape.
	Community Safety	Construction of the Project will result in a risk to community and workforce safety. During operation, potential risks to public safety (though highly unlikely) include collapse of tower, loss of turbine blades and ice throw.
	Local Traffic	Construction of the Project may result in increased local area traffic and temporary disruption along routes used resulting in delays to the local community traffic, and increased traffic as a result of equipment and turbine deliveries to the Project site.
	Radiocommunication Systems	The operation of a wind energy facility has the potential to interfere with radiocommunication systems in the Project's vicinity.
	Waste Management and Disposal Sites	Construction and operation of the Project will likely result in the generation of waste oils, recyclable material, and municipal hazardous and sanitary waste.

9. References

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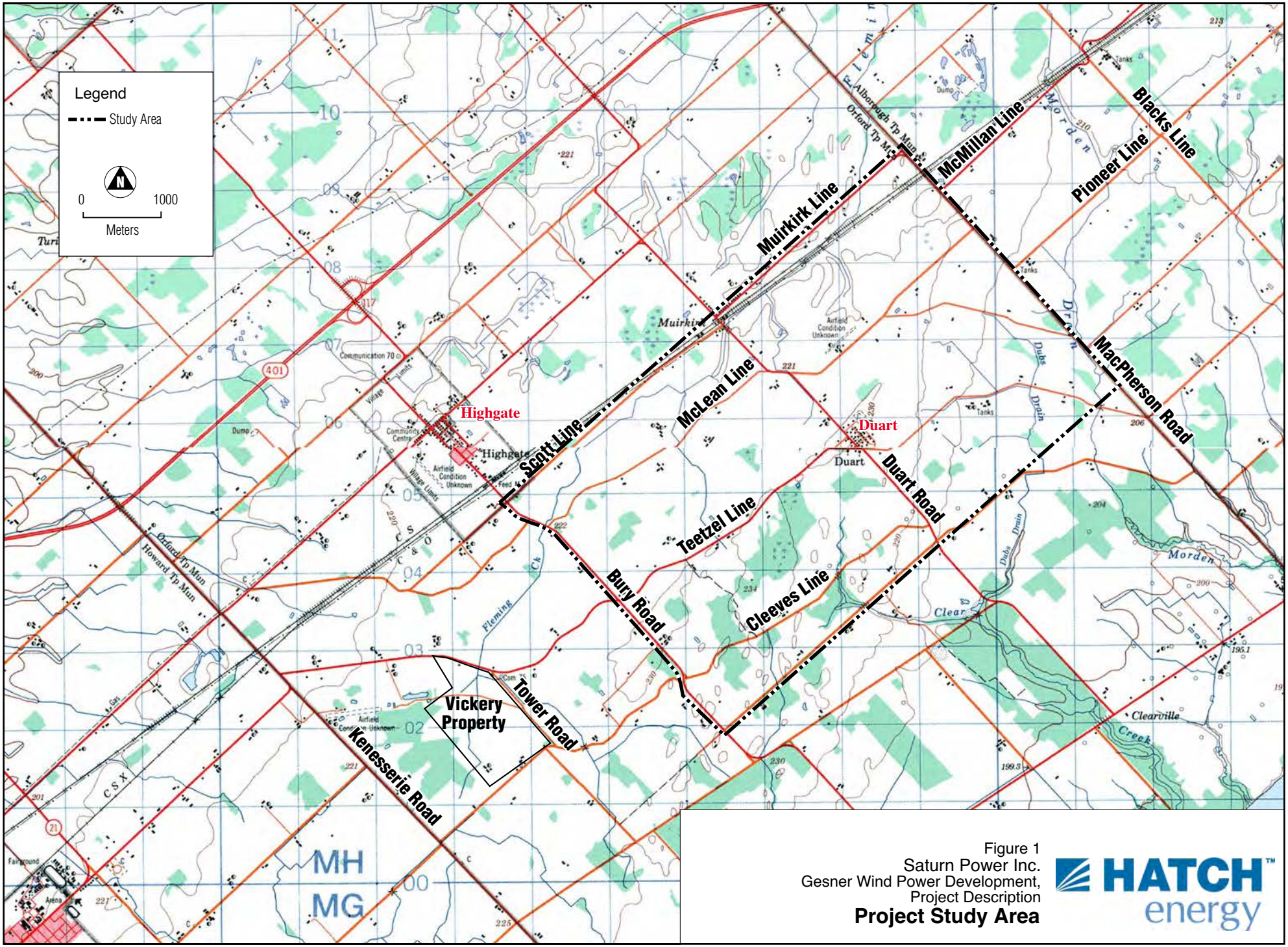

Figure 1
Saturn Power Inc.
Gesner Wind Power Development,
Project Description
Project Study Area

HATCH energy

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