

# Ark in the Park

## 2015 Kōkako Census



*Photo courtesy of Joe Judd*

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## 1. Summary

Auckland Zoo (AZ) conducted a 2015 census of North Island kōkako (*Callaeas wilsoni*) in Ark in the Park (AiP) from August to November, during which time the management area received 11 additional birds via translocation from Pureora. The census was completed in accordance with DOC Standard Operating Procedures. A combination of walk-through surveys and automated sound recorders were used to identify areas with birds. Once identified, zoo staff and dedicated volunteers followed the birds to determine whether they were paired or single birds and if each individual was colour banded or un-banded. By the end of the census period, nine territorial pairs and seven single birds were identified. The identities of 15 founders were confirmed among these birds, with the remaining birds identified as either un-banded or banded AiP progeny.

## 2. Translocations

Between August and September 2015, eight kōkako were translocated from Mangatutu Ecological Area and three from Mapara Wildlife Refuge, both in Pureora Forest, to AiP as outlined in Table 1 below.

**Table 1. Summary of 2015 kōkako translocations to AiP.**

No.	Sex	Band combo	Name	Source	Capture Site	Release Date
1	M	YM-LY	Tahi	Mangatutu	Skid Pr01	22/08/2015
2	F	YM-LG	Rua	Mangatutu	PT591	22/08/2015
3	F	YM-LB	Tiriwa	Mangatutu	RangiPapaPr6	23/08/2015
4	M	YM-LR	Rereahu	Mangatutu	RangiPapaPr6	23/08/2015
5	M	YM-LO	Ranginui	Mangatutu	RangiPapaPr5	23/08/2015
6	M	YM-YW	Potaē	Mangatutu	RangunuiRd	24/08/2015
7	M	YM-YG	Aumangea	Mapara	Wetas	14/09/2015
8	F	YM-YR	Thurley	Mapara	Wetas	14/09/2015
9	M	YM-YO	Te Ariki	Mapara	Wino	15/09/2015
10	F	YM-GB	Kiwitea	Mangatutu	West Ridge Pr 5	22/09/2015
11	M	YM-YB	Gordon	Mangatutu	Red Pr 1	23/09/2015

(Information sourced from Bryden, 2015)

### 3. Methods

#### *Census*

The 2015 census of AiP, which commenced early August and was completed in mid-November, was conducted using the same two methods as last year's census: walk-through survey and automated sound recorders. The walk-through survey protocol, as stated by Department of Conservation (DOC) Standard Operating Procedures, involved surveyors walking along bait lines, in parallel with other surveyors when possible, and stopping at 200m intervals to listen for birds or trigger a response from birds using a standard playback sequence (see below). Around four-hundred sites were sampled in this manner. Another circa sixty sites were sampled using recorders to detect kokako calls in L, B, P, AN, and T blocks where kōkako are rarely, if ever, heard or seen. When recorders deployed in those areas detected birds, surveyors investigated further by foot to determine if there were any resident birds. In total, more than 470 AZ staff hours and over 300 AiP volunteer hours were spent in the field conducting the census.

#### *Playback*

The standard playback used for the 2015 census (as part of the set protocol for the walk-through survey) was the same sequence as last year's census. The playback sequence used at each interval of the walk-through survey was as follows: three 'mew calls' followed by a five minute listening period, followed by three more 'mew calls' followed by a five minute listening period, followed by a series of songs made up of one each of the various dialects from the population of the founder birds at AiP.

#### *Recorders*

Recorders were again used to sample AiP's northern blocks (L, B, P, AN, and T) for the 2015 census as well as other areas of AiP throughout the year (see Appendix A). The recorders used are either designed and built by Eric Wilson or designed and sourced from DOC. A total of fourteen recorders (divided into two groups of seven) were rotated in the field on a weekly basis by Kevin Ferguson. For the deployed week, each recorder began recording about 30 minutes before sunrise for three hours per day. The recordings were then downloaded off the recorders and analysed using the audio editing program, Audacity. Through specific settings, Audacity generates a spectrogram, which provides a visual representation of the unique sound spectrum for each type of bird call. To assist with the time consuming task of analysing the recordings, AZ staff were trained by Eric Wilson to use Audacity and gladly developed the skill through many hours of practice.

#### 4. Census Results

The 2015 census of kokako in AiP (see Figure 1) commenced in the beginning of August with follow up tasks completed during the second week of November at which point 15 of the 37 founders to date were identified (see Table 2). Of the 15 founders identified, twelve were paired (Maurice/Kowhai, Pierre/Sophie, Totara/Puke, Marty/Manuka, Karen/Sylvain and Kiekie/Grace) and three appeared to be single birds. The Kiekie/Grace pair was an especially significant find as both birds were last sighted in 2012. The three apparently single founders are Rata, Te Ariki and Ranginui. However, Te Ariki and Ranginui are part of the recent translocations and may not remain single for long, whereas Rata was released in 2010 and has yet to be identified with a partner.

In addition to the confirmed founders, another ten birds were identified in the management area (see Figure 2). Two birds were banded progeny of Maurice/Kowhai, Andy and Hinau and the other eight were unbanded. The remaining eight unbanded birds consisted of two pairs (Unbanded Pair 1 and 2), a juvenile sighted with Karen/Sylvain, a single male, a male paired with Hinau and a sighting of a bird with Ranginui; bringing the total of birds identified during the census to nine pairs and seven single birds.

As in previous years, the majority of identified birds were sighted in the southern part of AiP and mainly in KOK and IW block. Only one bird (Rata in T block) was identified north of the dam. Furthermore, identified and unidentified birds were often observed moving back and forth across AiP's southern boundary. In regards to the recently translocated birds, two were identified in the census period. However, calls unlike the local dialect were frequently heard by surveyors around the release site and in the southern end of IW block. The calls were not usually part of the morning chorus, but rather prompted by playback with the birds responding at a safe distance and not being lured in close enough to be properly identified.

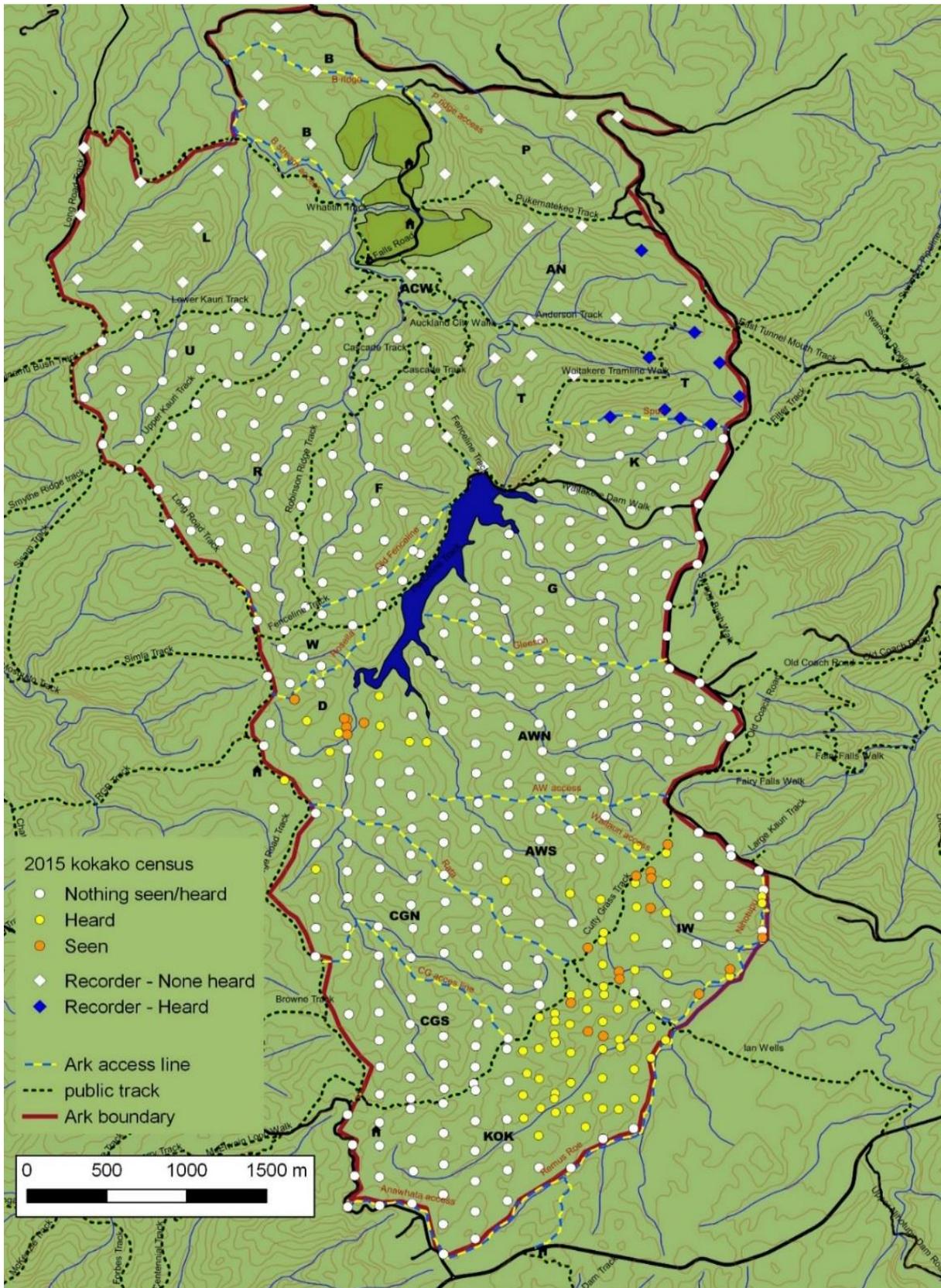


Figure 1. 2015 census results for Aipī.

**Table 2. Summary of AiP banded kōkako population at end of 2015 census**

Name	Sex	Band Combo	Status	Source
Maurice	M	M/RG	Pair seen 2015 census	Waipapa site 7
Kowhai	F	M/RLg	Pair seen 2015 census	Waipapa site 6
Pierre	M	M/YR	Pair seen 2015 census	Tunawae - pair
Sophie	F	M/GY	Pair seen 2015 census	Tunawae - pair
Totara	M	M/WG	Pair seen 2015 census	Waipapa site 5
Puke	F	M/WY	Pair seen 2015 census	Waipapa site 7
Karen	F	M/RW	Pair seen 2015 census	Waipapa site 4
Sylvain	M	M/WR	Pair seen 2015 census	Tunawae-middle pair
Marty	M	M/YG	Pair seen 2015 census	Waipapa
Manuka	F	M/YB	Pair seen 2015 census	Waipapa
Kiekie	?	M/YL	Pair seen 2015 census	Tunawae-middle pair
Grace	F	M/GW	Pair seen 2015 census	Tunawae-Rain
Rata	F?	M/BR	Seen 2015 Census	Mapara-Rain1 (South)
Hinau	?	WR/M	Seen 2015 census	AiP
Andy	?	BB/M	Seen 2015 census	AiP
Te Ariki	M	YM/YO	Released Sept 2015/Seen Nov 2015	Mapara
Ranginui	M	YM/LO	Released Aug 2015/Seen Nov 2015	Mangatutu
Gordon	M	YM/YB	Released Sept 2015	Mangatutu
Kiwitea	F	YM/GB	Released Sept 2015	Mangatutu
Thurley	F	YM/YR	Released Sept 2015	Mapara
Aumangea	M	YM/YG	Released Sept 2015	Mapara
Pōtae	M	YM/YW	Released Aug 2015	Mangatutu
Tiriwa	F	YM/LB	Released Aug 2015	Mangatutu
Rereahu	M	YM/LR	Released Aug 2015	Mangatutu
Rua	F	YM/LG	Released Aug 2015	Mangatutu
Tahi	M	YM/LY	Released Aug 2015	Mangatutu
Dylan	M	M/YW	Last seen Oct 2014	Tunawae
Poroporo	?	LW/M	Fledged 2013 / 2014	AiP
Kauri	F	M/LW	Last seen Feb 2013	Waipapa
Nikau	M	M/WL	Last seen Feb 2013	Mapara- (South)
Duncan	M	M/Ry	Last seen May 2013	Tunawae-Nth Ea access
Moby	M	OM/Y	Last seen winter 2013, Waitakere Golf Course implement shed.	Tiritiri Matangi Island
Pareira	F	GL/M	Seen with Grace 2012-2013 season.	Tunawae
Rhonda	F	M/GR	Last seen 2012/2013	Tunawae-Nth Ea access
Rimu	M	M/GB	Last seen 2012	Waipapa
Punga	F	YM/R	Last seen 2011	Tiritiri Matangi Island
Maire	F	M/BW	Last seen 2011	Mapara-Rain2 (South)
Lucy	M	M/LY	Last seen 2011	Tunawae-Owawenga
George	M	M/LR	Last seen 2011	Tunawae-Owawenga
Miro	M	R/GM	Last seen 2011	AiP
Matai	M	WB/M	Last seen 2011	AiP
Wahine	F	M/RB	Not seen since release	Waipapa site 7
Brittany	F	L/YM	Deceased Sept 2014	AiP

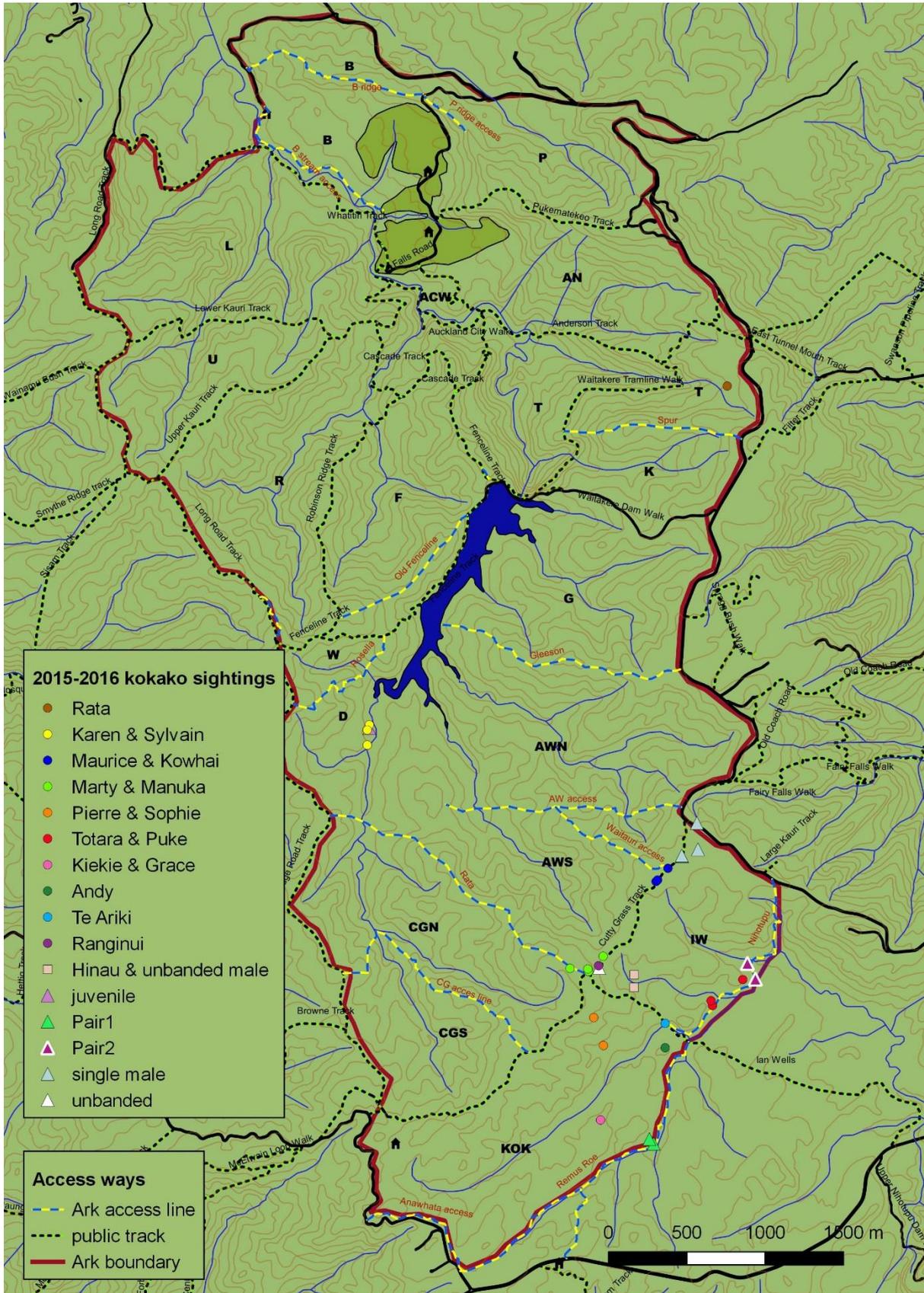


Figure 2. Locations where identified birds were seen during the 2015 census

## 5. 2015 Census Results vs. 2014-15 Territories

At the end of the 2014-2015 kōkako breeding season, a potential eighteen territories were identified. The identities of the territorial birds, either a pair or single bird, were only confirmed for eight of the eighteen territories while the birds in the other ten remained unidentified (see Table 3 below). During the 2015 census, surveyors were able to confirm the bird identities for sixteen of the eighteen 2014-15 territories. The territory (T) for a single founder and five founder pairs remained the same (see Figure 3), though one founder pair, Pierre/Sophie, was sighted numerous times in an adjacent territory as well (T12), which suggests the territories in AiP are potentially larger than previously proposed. Another founder pair, Totara/Puke, was also sighted in more than one territory (T6 and T9), but not in T8 where they were identified last season, which was instead occupied by AiP progeny, Andy. In addition to founder pairs potentially occupying larger territories, unbanded Pair 1 was sighted in T5 and T7. Unfortunately, no birds were detected in T4, T10, T15 and T16, although birds were identified in areas outside of the proposed territories. For example, the pair Hinau and unbanded male appear to occupy a territory not previously identified or one that may incorporate part of T6.

**Table 3. Summary of kōkako present within each territory during the 2014-2015 breeding season compared to 2015 census results.**

<b>Territory</b>	<b>How many birds present</b>	<b>2014-2015 breeding season identities</b>	<b>2015 census identities</b>
T1	Single	Rata	Rata
T2	Pair	Karen & Sylvain	Karen & Sylvain
T3	Pair	Maurice & Kowhai	Maurice & Kowhai
T4	Pair	Unidentified	No birds detected
T5	Single or Pair	Unidentified	Unbanded Pair 1
T6	Pair	Unidentified	Totara & Puke
T7	Pair	Unidentified	Unbanded Pair 1
T8	Pair	Totara & Puke	Andy
T9	Pair	Unidentified	Totara & Puke
T10	Single	Unidentified	No birds detected
T11	Pair	Marty & Manuka	Marty & Manuka
T12	Pair	Pierre & Sophie	Pierre & Sophie
T13	Single	Unbanded male	Te Ariki
T14	Pair	Unidentified	Pierre & Sophie
T15	Pair	Unidentified, one is probably unbanded	No birds detected
T16	Pair	Unidentified	No birds detected
T17	Pair	Unidentified “Swamp Pair”, probably founders	Kiekie & Grace
T18	Single	Unbanded	Unbanded Pair 2

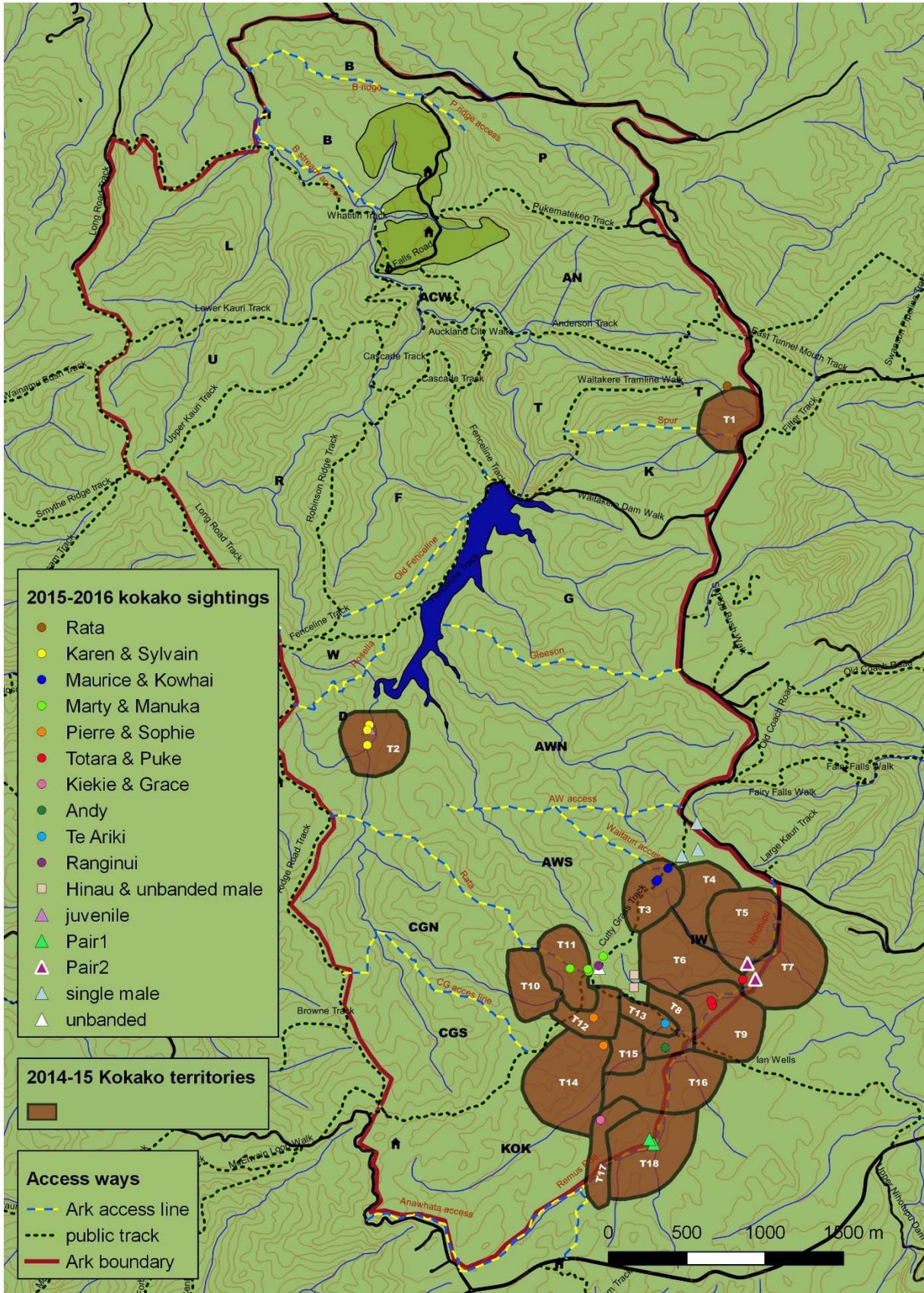


Figure 3. Comparison of 2015 census results to proposed territories held by kōkako pairs during 2014-2015 breeding season in AiP.

## **6. Discussion and Recommendations**

Compared to the 2014 census, surveyors were able to identify more birds during the 2015 census period. Much of the bird identification success can be attributed to the survey team being equipped with a FOXPRO, a hand held speaker with excellent sound quality and projection, and playback of AiP dialect recorded by Grant Capill. By using the FOXPRO to project the local dialect playback, surveyors were able to attract the attention of birds at a greater distance or if the birds were in close proximity, trigger a stronger response from them. Either way, birds were more responsive to playback than previously and, thus more readily identified.

Despite the responsiveness of birds in areas such as KOK and IW block using the above strategy, no birds were detected in the walk-through survey blocks north of the dam when surveyors employed the same tactics. Therefore, though time consuming for analysis, the more recorders can be strategically used in conjunction with walk-through surveys, the greater likelihood of identifying elusive birds and making best use of the time allocated for walk-through surveys.

For the 2016 census, Auckland Zoo recommends all blocks north of the dam are surveyed using recorders since no birds were detected with walk-through surveys in the last two censuses and that recordings of the local dialect are developed prior to the census commencing in August to ensure optimal playback is used for walk-through surveys. Long-term recommendations include:

1. selective vegetation removal to create short cuts between bait lines where birds are frequently moving back and forth, which will enable surveyors to more effectively follow birds to determine identities and territory boundaries
2. extend the management area beyond IW and KOK access lines as numerous birds are often observed traversing AiP's southern boundary and it is challenging for surveyors to follow birds without the presence of cut bait lines

## **7. Acknowledgments**

Auckland Zoo would like to thank AiP volunteers, especially Joe Judd, Mark Darin, Kevin Ferguson and Grant Capill, and AZ Primate team for assisting with the walk-through surveys; Kevin Ferguson and Eric Wilson for the countless hours spent deploying and analysing recorders; Dave Bryden for always being so supportive with advice and expertise; and Gillian Wadams and Laurence Bechet at Forest & Bird for providing the opportunity to be part of this project for a third year in a row.

## 8. References

Bryden, David. (2015). *2015 Kōkako Translocation Report/Translocating North Island kōkako from Mangatutu Ecological area and Mapara Wildlife Refuge to Sanctuary Mountain Maungataurtari, Ark in the Park, and the Hunua Ranges Regional Park*. Auckland Council, Auckland (unpublished internal document).

## 9. Appendices

### *Appendix A*

Figures 4-6 (see pg.13-15) are sound recording maps of AiP from July to December 2015 created by Eric Wilson. Each circle colour denotes different types of kōkako song recorded: Blue is no song, green is faint song only, yellow is medium volume song, and red is loud song. The density of each colour is relative to the number of days in the recording period in which kōkako song was heard (the denser colours represent recorders with the most singing).

Figures 1, 2 and 3 were created by Laurence Bechet (Forest and Bird).

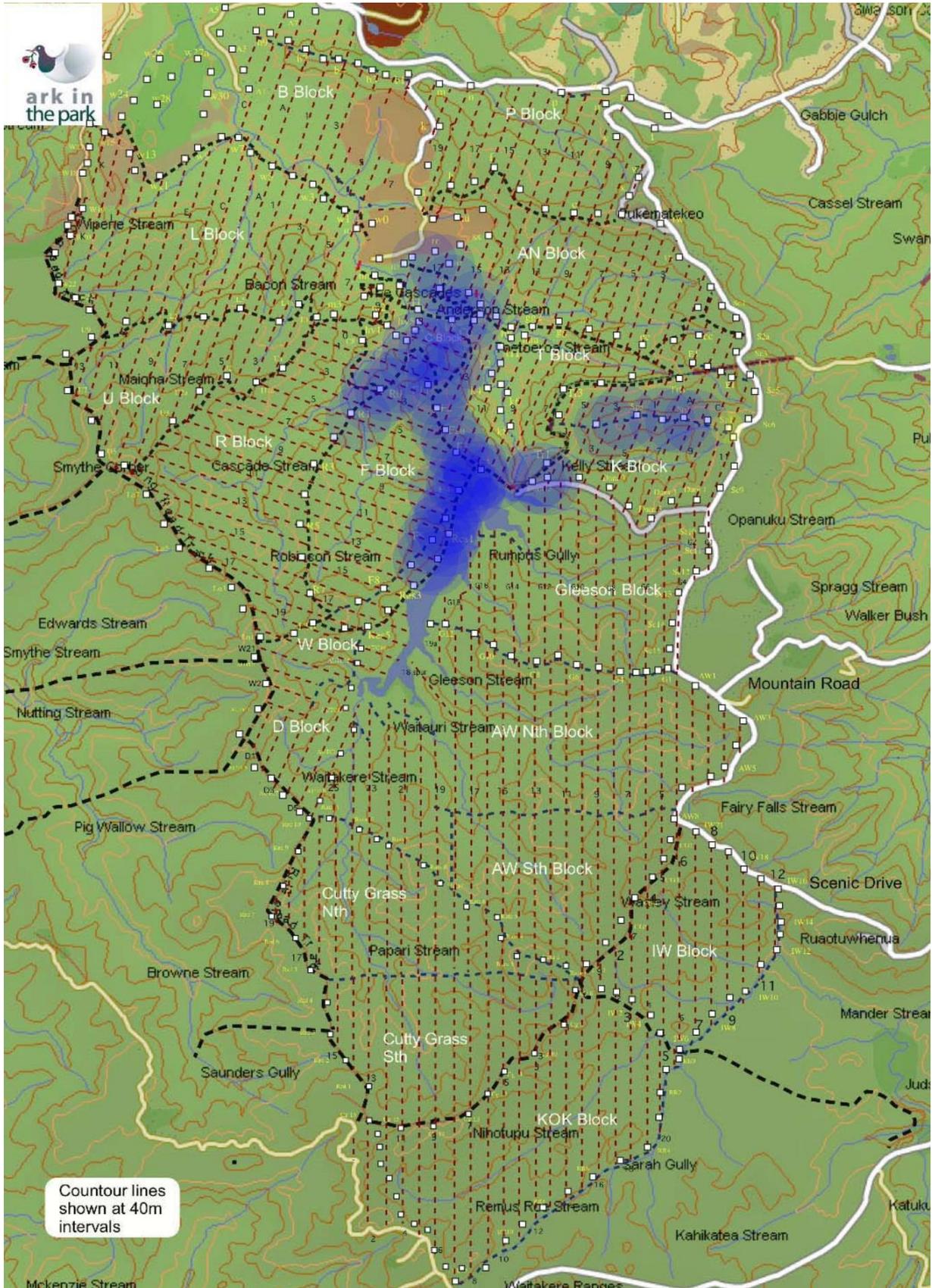


Figure 4. Sound Recording Map for April to June 2015

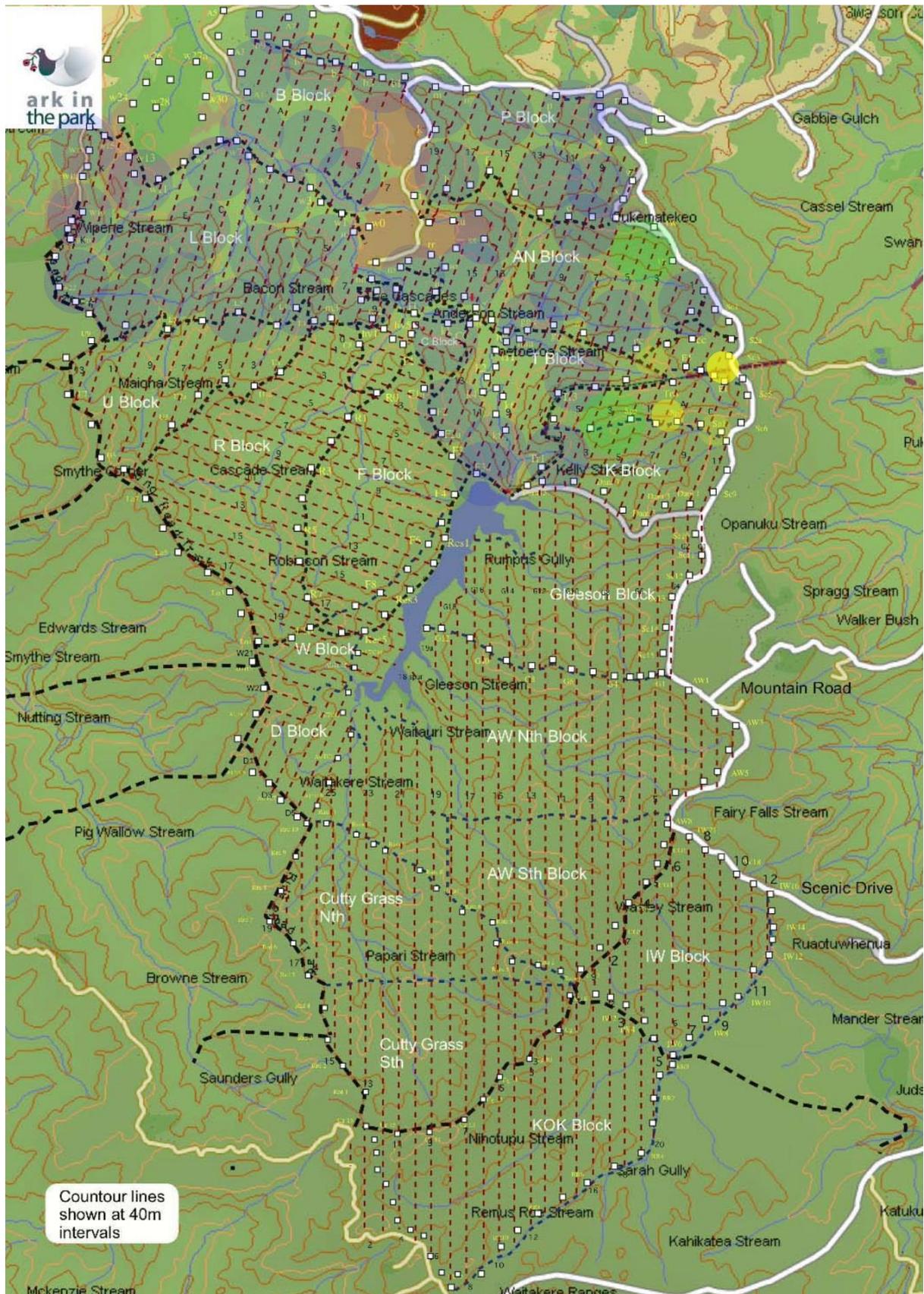


Figure 5. Sound Recording Map for July to September 2015

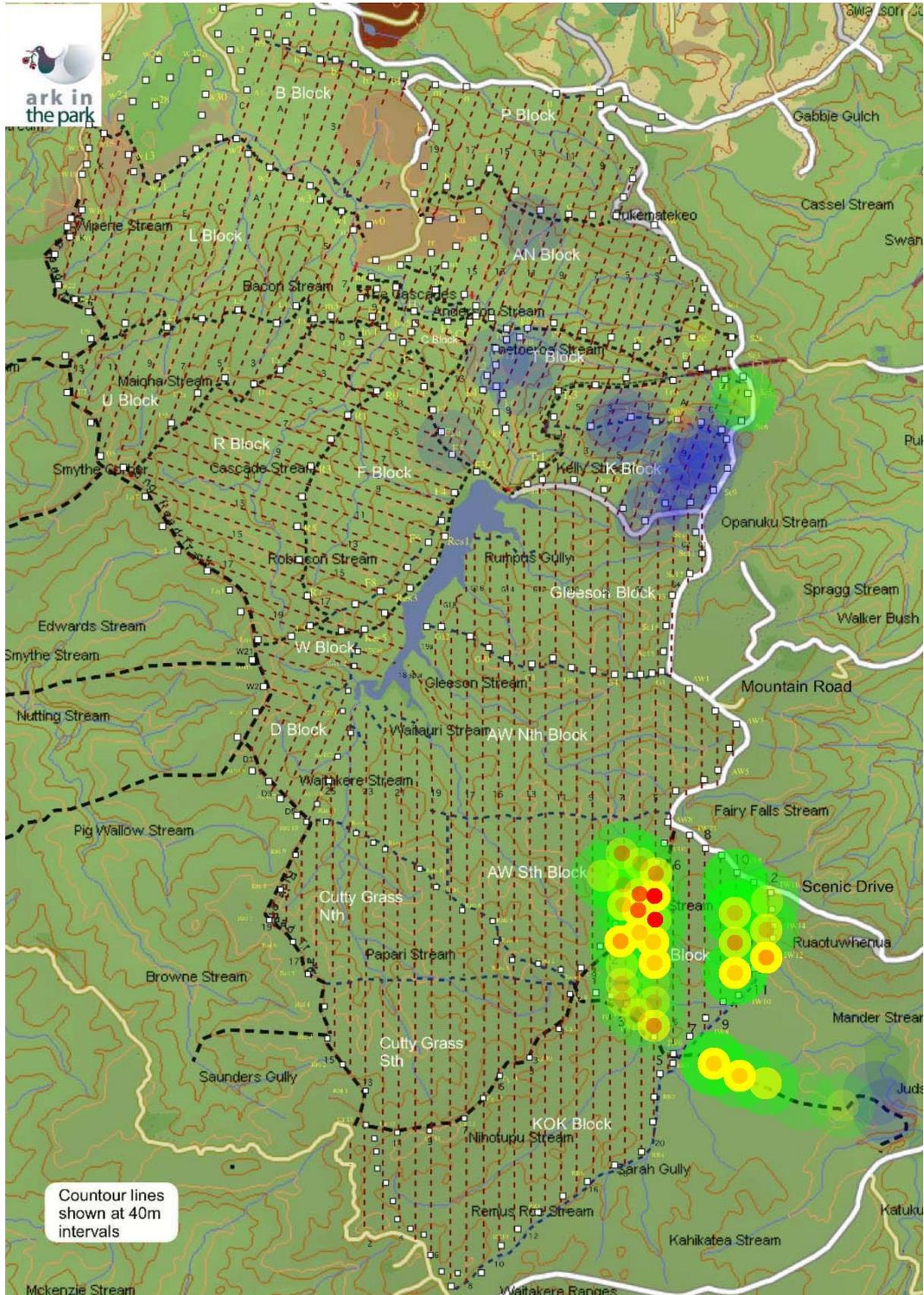


Figure 6. Sound Recording Map for October to December 2015