

Mohua survey in the Blue and Young Valleys Nov – Dec 2012

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SUMMARY

The first comprehensive mohua survey of the Blue and Young River valleys in Mount Aspiring National Park was conducted between 13 November and 5 December 2012.

Transects were established along the main tracks in the river valleys, treating each New Zealand Map Grid (NZMG) one-kilometre square as a unit, with two point counts and a transect line in each square.

In the Young valley from 13 November through 23 November, 39 mohua were detected in 14 of 21 survey squares, between two kilometres from the Makarora River, 3km up the North Branch and 5km up the South Branch of the Young River, from Young Forks.

In the Blue valley, between 30 November and 5 December, 16 mohua were detected in 15 kilometre-squares, from a point 1km from the Makarora River, upstream to the bottom end of the topmost set of river flats, 9km in. The South branch of the Blue River was not surveyed in 2012.

INTRODUCTION

The Young and Blue river valleys are located in Mount Aspiring National Park, near the township of Makarora, 65 kilometres north of Wanaka. Both of these rivers feed into the Makarora River, ~3km upstream from Makarora. There is a popular tramping track through the main Young valley, up the South Branch, which is part of the Gillespie Pass circuit; the North Young is untracked from the flat at Young Forks. The Blue River has a good tramping track, but there are no DOC huts in this valley, and the Blue valley receives few visitors in comparison with the Young.

Silver beech dominates the bush canopy in these valleys, from the Makarora River at 300m altitude, to the bushline at ~800-900m altitude. There are extensive grassy river flats in the upper regions of the Blue valley, where the bush becomes patchy and confined to the steep valley sides. The bush is more contiguous in the Young valley, through to bushline in the South Branch, and beyond the landslide and dam in the North Branch of the river.

The Makarora River lies between two large Operation Ark mohua populations, in the Landsborough River and Dart Caples (O'Donnell 1996), though little is known about the Makarora population itself. The Royal Forest and Bird Protection Society first took interest in the Makarora mohua population in 1998 with their Mohua Protection Project, and a joint effort between DOC and Forest and Bird now maintains 300 predator traps along the Haast highway and the Young valley. Nigel Babbage and the Mohua

Charitable Trust provided funding for these traps to be upgraded from Fenn traps to DOC 150s along the Makarora Valley and for old DOC200 traps to be upgraded by new generation of DOC200 traps in the lower Young Valley in late 2011.

The Mohua Charitable Trust also provided funding to DOC Wanaka for the first mohua distribution survey in the Blue and Young River valleys. The purpose of the 2012 survey was to:

- 1) Provide an indication of the abundance and distribution of mohua in the Blue and Young River valleys
- 2) Determine the current range of mohua throughout the Blue and Young valleys

METHODS

The distribution survey was conducted from mid-November to early-December, to coincide with the territorial phase of the birds, prior to nesting. All data were collected by Katharina Manno, and work was undertaken in fine weather conditions where possible.

Each 1000m grid square with suitable beech forest habitat within the Blue and Young valleys (Figures 1, 2) was surveyed between 09:00h and 16:00h from 13 November and 5 December 2012, following the methodology of O'Donnell & Elliott (undated) and O'Donnell, Elliott, & Greene (2007). Thirty-six grid squares were searched between the valleys (21 in the Young and 15 in the Blue), and squares were assigned names based on the first letter of the river valley followed by the second two digits of the NZMG Easting and Northing (e.g. Y0164 was square # E2201000, N5664000 in the Young valley). The survey track followed walking tracks through the majority of the grid squares, but where the walking tracks exited the bush and entered grassy flats, the survey track diverged from the walking track to follow the bush edge, and where there were no walking tracks, the survey track followed beech forest habitat near the river. A minimum of 40 minutes, and often longer than one hour, was spent in each square, with the observer walking at a very slow pace. The survey path was recorded using the track log function in a Garmin 60CSx GPS. A standard data sheet (Appendix A) was completed in the field for each square.

Squeakers (pieces of polystyrene rubbed on the blade of a pocket knife) were used to help detect mohua and determine group sizes, since mohua often respond to a squeaker by coming closer and chattering in response. Squeaker use was avoided within 10 minutes of a 5-minute bird count, so as to not influence the count.

When mohua were heard or seen, the observer would follow the birds to determine how many were in the group, and to try to sight them. All mohua locations were recorded with a GPS waypoint. The number, sex and age of mohua were recorded whenever possible. Additional details about the mohua distribution survey methodology were as follows:

- The observer walked slowly at 0.8-1.0 km per hour (O'Donnell 1996) along the designated transect lines between 09:00h and 16:00h.
- Birds were located by listening to male or female song (which is different for each sex), brief, soft contact calls and 'louder staccato 'pneumatic' calls (both sexes).

- When mohua were heard or seen every effort was made to establish how many birds were in each group.
- The observer spent up to 10 minutes establishing contact with a group. If the number of birds was not ascertained in that time, then the transect walk was resumed.
- Each group separately on a field sheet, noting number of birds and number of confirmed males and females in each group.
- Double-counting of birds was minimised by continually monitoring surrounding/adjacent calls of mohua.
- Counts were undertaken in similar (good/fine) weather conditions and with little ambient noise (e.g., wind noise)
- Binoculars were used to aid observations

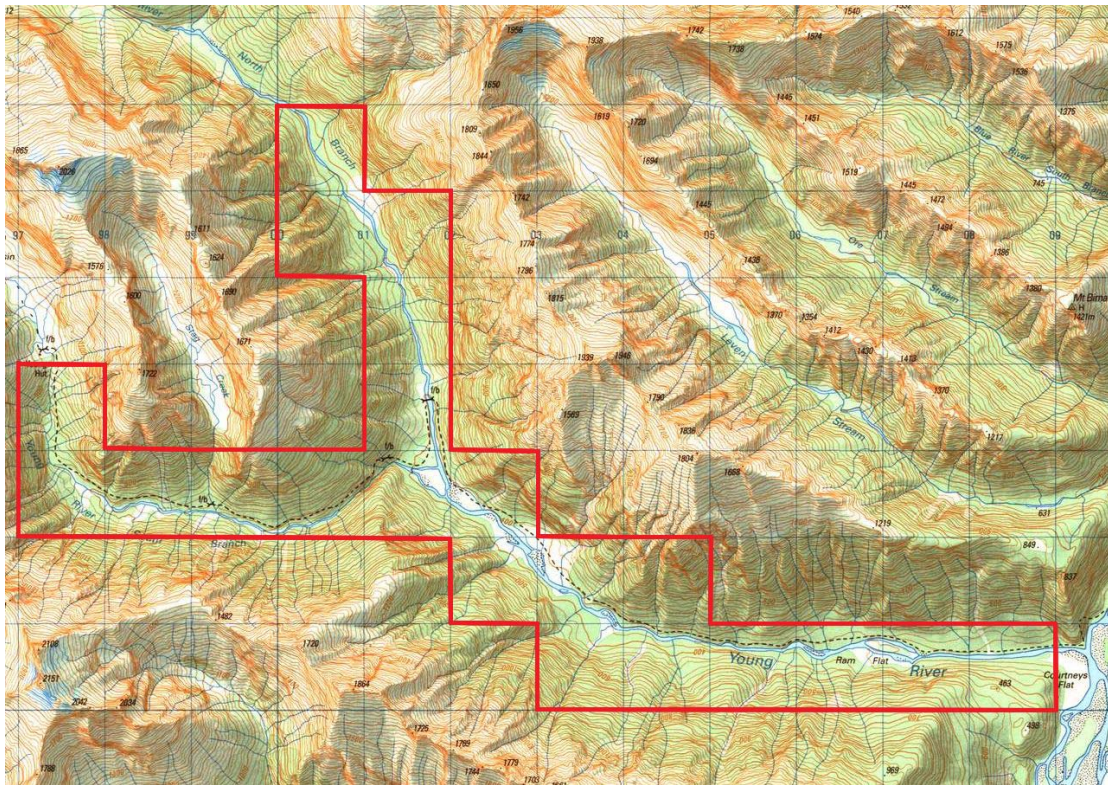


Figure 1. Young River valley survey area (outlined in red); 21 kilometre-squares total (NZMG).

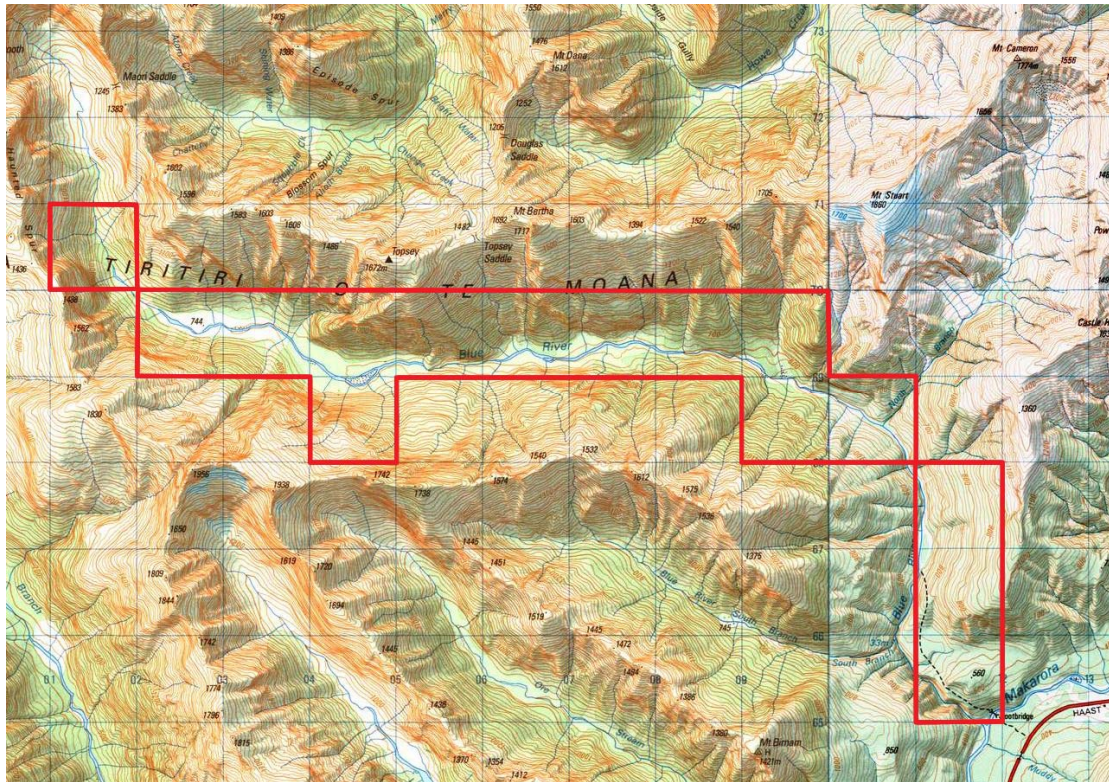


Figure 2. Blue River survey area (outlined in red); 15 kilometre-squares total (NZMG).

Two five-minute bird counts (5MBC) were conducted in each grid square, following the methodology of Dawson & Bull (1975) and Hartley & Greene (2007). For squares with less than half beech forest, sometimes only one 5MBC was conducted. The 5MBC were at least 200m apart, and at least 100m inside the grid square or forest edge. All 5MBC locations were recorded with a GPS waypoint. Additional details for the 5MBC methodology were as follows:

- The observer stood quietly and immediately began recording all individuals detected for exactly five minutes. The number of each species of bird observed was recorded. Birds seen and heard added to give the total number of birds detected. No bird was knowingly counted twice within a single count.
- If an individual bird was included in a count from a previous station it was counted again. No birds were assumed to be present without some visual or auditory clue to their presence (e.g. a flock of silvereyes was noted as the number heard calling rather than the number the observer guessed such a frequency of calling would represent). If a bird called in one place and later one of the same species called some distance away, they were taken as two individuals unless there was evidence that the first bird moved to the second place.
- Standard forms were used for recording observations (Appendix B)

If mohua were heard in a 5MBC, they were followed up once the count was finished, and another GPS waypoint marked where they were found. If mohua were seen during the 5MBC, this was noted, and the waypoint also became a mohua waypoint.

In addition to the survey visits, any mohua detected when passing through a square enroute to another were recorded. In this way, some mohua that went undetected during the initial survey, were found and recorded. These records were separated out for data analysis.

All means are reported with 95% confidence intervals.

RESULTS

Young Valley

The true right side of the North Young and true left side of the main Young River were surveyed from 13 - 16 November; the true left side of the South Young and true right side of the main valley were surveyed from 20 - 23 November.

Three to four squares were completed per full survey day, with an average of 73 minutes spent in each square. A total of 42 5-minute bird counts were completed in the 21 kilometre-square survey area. Excel spreadsheet DOCDM-1136175 contains all data from the 2012 mohua distribution survey and 5MBC.

The weather was generally good on survey days, though there was some very cold and wet weather on 17-18 November.

Five-minute bird counts

Figure 3 shows the routes walked through each grid square, and the locations of the 5MBC.

The chaffinch was the most commonly heard bird in the Young valley, with a total of 137 individuals recorded during the 42 5MBC. The redpoll was the second-most common (98 individuals), followed by rifleman (46), grey warbler (36), bellbird (32), brown creeper (32) and silvereye (31). Figure 4 shows the mean number of individuals for each species per 5MBC. A total of 11 mohua were recorded in nine of the 42 point counts. The average number of mohua recorded per 5MBC was 0.26 ± 0.54 .

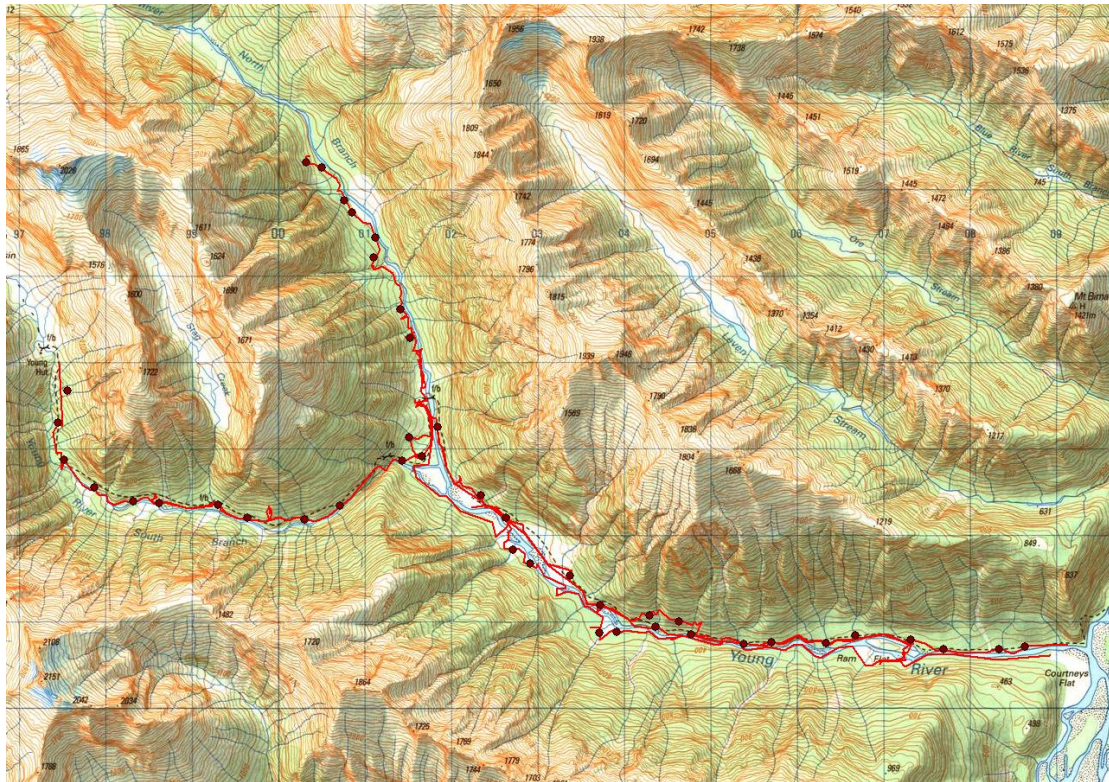


Figure 3. Five-minute bird count (5MBC) stations (red dots) along the Young River. The survey track is outlined in red.

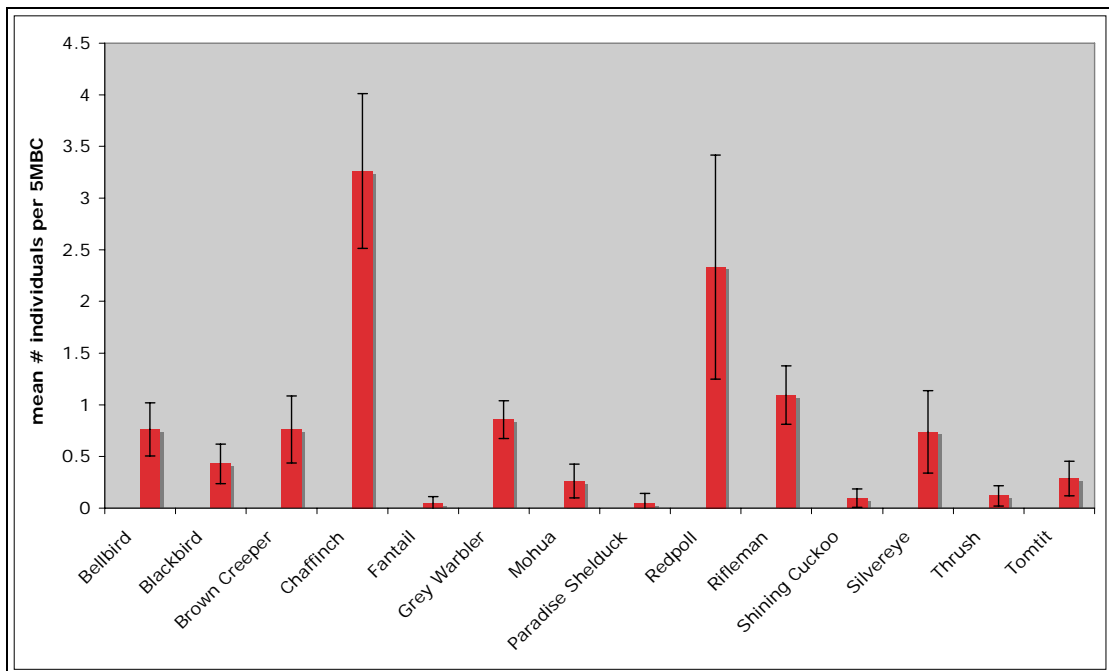


Figure 4. Mean number of birds per 5-minute bird count (5MBC) in the Young Valley. Bars represent 95% confidence intervals.

Mohua survey

Twenty-two mohua were found in nine of the 21 survey squares in 24h, 24min (Table 1). Seventeen additional individuals were recorded outside the survey framework (when

walking through the survey squares at other times), for a total of 39 mohua in 14 squares throughout the valley (Table 1; Figure 5).

Table 1. Summary of mohua records from the Blue and Young valley surveys.

	Young River Fixed transect	Young River All records	Blue River Fixed transect	Blue River All records
# Groups	15	26	7	15
# Males	22	36	7	15
# Females	0	3	0	1
Total # mohua	22	39	7	16
Mohua per square	1.1	1.9	0.5	1.1
Time taken	24:24		18:44	

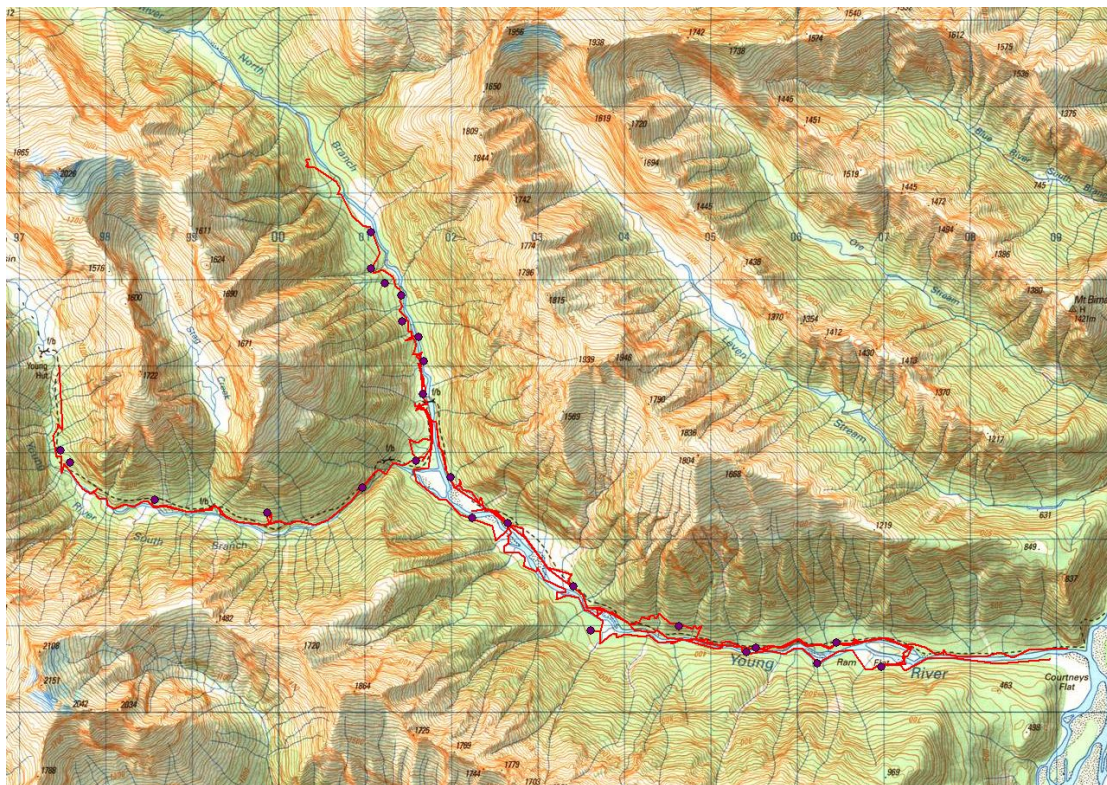


Figure 5. Mohua records (purple dots) in the Young valley. The survey track is outlined in red.

Blue Valley

The Blue valley was surveyed from 30 November through 5 December, 2012.

Three to four squares were completed per full survey day, with an average of 66 minutes spent in each square. A total of 29 5-minute bird counts were completed in the 15 kilometre-square survey area. Excel spreadsheet DOCDM-1136175 contains all data from the 2012 mohua distribution survey and 5MBC.

The weather was unusually cold during the Blue survey, and there were some very cold and wet periods between survey days. The final surveys on 5 December were conducted in heavy rain.

Five-minute bird counts

Figure 6 shows the routes walked through each grid square, and the locations of the 5MBC.

The chaffinch was the most commonly heard bird in the Blue valley, with a total of 70 individuals recorded during the 29 5MBC. The redpoll was the second-most common (52 individuals), followed by rifleman (35), grey warbler (18), bellbird (15), silvereye (15) and tomtit (12). Figure 7 shows the mean count for each species per 5MBC. A single mohua was recorded in the point count for square B1167. The average number of mohua recorded per 5MBC was 0.03 ± 0.07 .

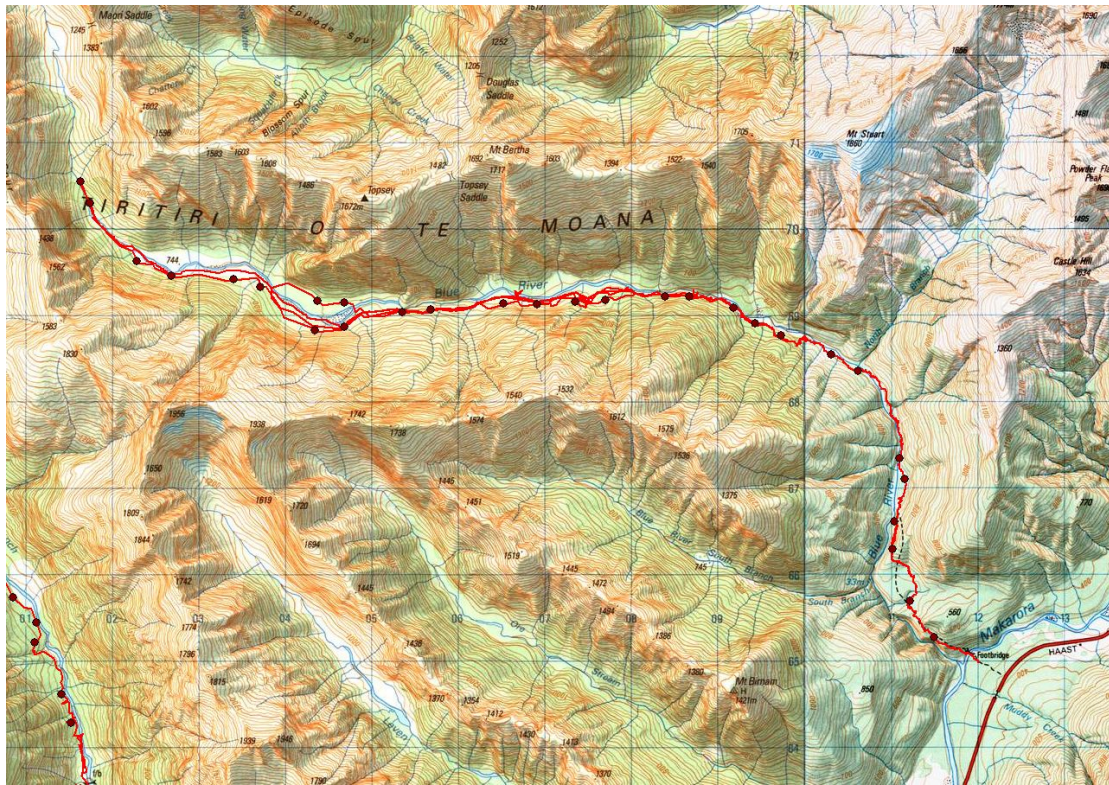


Figure 6. Five-minute bird count (5MBC) stations (red dots) along the Blue River. The survey track is outlined in red.

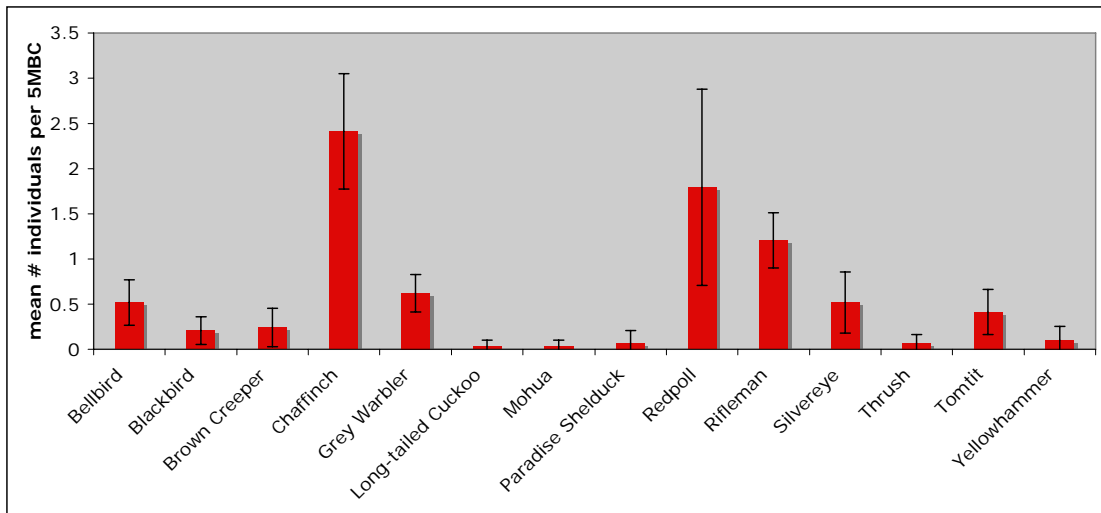


Figure 7. Mean number of birds per 5-minute bird count (5MBC) in the Blue Valley. Bars represent 95% confidence intervals.

Mohua survey

Seven mohua were found in five of the 15 survey squares in 18h, 44min (Table 1). Nine additional individuals were recorded outside the survey framework (when walking through the survey squares at other times), for a total of 16 mohua in eight squares throughout the valley (Table 1; Figure 8).



Figure 8. Mohua records (dots) in the Blue valley. The survey track is outlined in red.

DISCUSSION

A significant population of mohua was found in the Blue and Young valleys. The mohua in both valleys were extremely cryptic and quiet during the 2012 survey. A large proportion of the records (~50%) were collected on non-survey days, on the second and third walks through the squares, which suggests that there were many more birds in the area than were recorded during the three survey weeks.

The weather was extremely variable, and often cold and wet, through the study period, with a higher-than-average frequency of southerly winds and storms in October and November. This could have had an effect on the birds' singing rates during the survey. This unsettled weather may also have had an effect on the timing of mohua breeding. Also, the survey was delayed into the second half of November and early part of December, which coincides with the end of the territorial phase and the start of mohua nesting. The mohua population in the Makarora valley is likely much larger than the results of this study indicate.

RECOMMENDATIONS

A monitoring program should be set up in the Blue and Young valleys, to conduct annual surveys of mohua in the area. The surveys should be started earlier (weather-permitting), and the area should be extended to include the South branch of the Blue River. The Leven and Ore valleys should be included in the survey, to map the distribution of mohua in the area between the Blue and the Young, and surveys should be conducted in the Wilkin and Siberia valleys to determine whether the range extends through these areas as well.

The survey methodology should be altered, since half of the 2012 mohua records were collected outside the survey framework. Transect squares should be visited two to four times each in future surveys, to increase the likelihood of detection of individual birds.

The significant size of the mohua populations in these valleys also suggests that consideration should be given to predator control in the area. A contingency plan should be implemented for controlling rat populations in years of significant beech mast (O'Donnell, Roberts, & Lyall 2002).

ACKNOWLEDGEMENTS

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Appendix B. 5MBC data sheet.
 FIVE MINUTE BIRD COUNT STANDARD DATA FIELD FORM

Observer		Date		General location		Specific location	
Line number							
Station number							
Grid ref (Easting, 7 digits)							
Grid ref (Northing, 7 digits)							
Start time (24 hour)							
Temperature (1-6)							
Wind (0-3)							
Other noise (0-2)							
Sun (minutes)							
Precipitation type (N,M,R,H,S)							
Precipitation value (0-5)							

Species	Seen	Heard	Seen	Heard	Seen	Heard	Seen	Heard	Seen	Heard

Sun (0-5) Record approximate duration, in minutes, of bright sun on the canopy immediately overhead		Seen and Heard Birds that are first heard should be entered under H (even if they are later seen), birds that are first seen should be entered under S . Adding H and S should give the total number of birds observed	
Time 24 hour clock, at the beginning of each count		Unbounded Counts are unbounded	
Temperature 1 freezing < 0°C 2 cold 0-5 °C 3 cool 6-10 °C 4 mild 11-15 °C 5 warm 16-22 °C 6 hot > 22 °C	Wind The average for each five-minute count on a modified Beaufort scale: 0 Leaves still or move without noise (Beaufort 0 and 1) 1 Leaves rustle (Beaufort 2) 2 Leaves and branches in constant motion (Beaufort 3 and 4) 3 Branches or trees sway (Beaufort 5, 6 and 7)	Other Noise i.e. Other than wind the average for the five minutes 0 not important 1 moderate 2 loud	Precipitation type Average for each count N None M Mist R Rain H Hail S Snow
		Precipitation value 0 None 1 Dripping foliage 2 Drizzle 3 Light 4 Moderate 5 Heavy	

Appendix C. Mohua records from survey squares in the Blue and Young valleys

Date	Transect	Location	No. of Mohua	Time heard	Waypoint	Comments
13/11/12	Y0164	Young North	1	8:52	E2201670, N5664060	one male singing across river. No response to squeak for ~20min. Bird not seen
13/11/12	Y0164	Young North	2	9:58	E2201420, N5664524	one male heard singing; 2 birds came in to squeaker
13/11/12	Y0164	Young North	1	9:38	E2201610, N5664340	male heard singing across river from point count.
13/11/12	Y0164	Young North	1	10:25	E2201409, N5664824	one male; first heard during 5MBC, then seen
13/11/12	Y0165	Young North	1	11:26	E2201059, N5665136	one male seen; came in to squeak
13/11/12	Y0165	Young North	2	12:00	E2201061, N5665558	one mohua heard during 5MBC; two birds responded to squeaker and came down to chatter
21/11/12	Y0162	Young	2	13:15	E2201570, N5662933	both individuals are male *male and female seen on 14Nov, so group is 3 birds total
14/11/12	Y0262	Young	1	11:50	E2202637, N5662196	one male heard and seen. No response to squeaking; remained in canopy, singing periodically
15/11/12	Y0461	Young	3	11:27	E2204623, N5660999	one bird heard during 5MBC; 3 individuals came down and chattered in response to squeak.
15/11/12	Y0560	Young	1	12:33	E2205379, N5660749	one male singing during transect survey; two individual males recorded at this location on 23Nov
15/11/12	Y0560	Young	1	12:40	E2205403, N5660704	another male singing across river from mohua recorded during transect survey. Pair seen on 22Nov
20/11/12	Y9762	Young South	1	10:50	E2197470, N5663025	one male singing from canopy at track just north of hut
20/11/12	Y9762	Young South	2	10:58	E2197580, N5662890	two males singing right next to toilets, just southeast of hut
21/11/12	Y0062	Young South	2	12:15	E2200957, N5662607	one male mohua heard calling quietly from track. Two individuals came down to squeaker
22/11/12	Y0360	Young	1	11:40	E2203598, N5660951	one male singing from canopy
1/12/12	B0509	Blue	1	10:10	E2205950, N5669068	one male singing near track and chattering periodically; came down to squeaker
2/12/12	B0968	Blue	1	13:30	E2209900, N5668650	one male heard singing briefly near stream, then silence for >10min. Unable to locate bird
4/12/12	B1068	Blue	1	11:15	E2210113, N5668694	one mohua called once and chattered once, 50m uphill from track. Observer unable to locate bird
4/12/12	B1068	Blue	1	12:10	E2210805, N5668296	one male singing and chattering from track at crossing; came down and chattered to squeaker
4/12/12	B1167	Blue	1	14:07	E2211166, N5667094	one male singing and chattering from bush edge near track; came down and chattered to squeaker
4/12/12	B1166	Blue	1	15:35	E2210935, N5666640	one mohua chattering across river from track
4/12/12	B1166	Blue	1	15:35	E2209900, N5668650	another mohua chattering ~50m downstream of bird @15:35

Appendix D. Additional mohua records collected outside of survey framework

Date	Transect	Location	No. of Mohua	Time heard	Waypoint	Comments
13/11/12	Y0164	Young North	3	16:27	E2201218, N5664967	one male heard singing; 3 birds (1 male + 2 female/juv) came in to squeaker and started chattering
14/11/12	Y0162	Young	1	11:00	E2201982, N5662728	one male calling infrequently; not very responsive to squeak. Bird seen as well as heard.
14/11/12	Y0162	Young	1	9:36	E2201585, N5662919	one pair in a flock of brown creepers *two males seen at this site on 21Nov – there are 3 birds total
15/11/12	Y0560	Young	1		E2205510, N5660752	one male singing during transect survey; two individual males recorded at this location on 22Nov
22/11/12	Y0560	Young	1	14:20	E2205403, N5660704	another male singing directly across river from mohua recorded during survey. Pair seen on 22Nov
15/11/12	Y0660	Young	1	15:22	E2206557, N5660805	one male singing from canopy; reluctant to come down to squeak, but chattered a bit
20/11/12	Y9862	Young South	1	9:25	E2198562, N5662459	one male singing intermittently from canopy; came down and chattered in response to squeaker
21/11/12	Y9962	Young South	1	10:35	E2199862, N5662315	mohua chattering (one or more birds) uphill from track. One male heard; observer could not locate
22/11/12	Y0163	Young North	1	6:00	E2201675, N5663569	one juvenile male singing from isolated beech tree during dawn chorus near bivy
21/11/12	Y0262	Young	2	15:05	E2202233, N5662259	one male heard singing; 2 individuals came down and chattered in response to squeaking
22/11/12	Y0660	Young	1	15:50	E2206960, N5660569	one bird heard chattering briefly; no response to squeaking, and no other noise within 15min
22/11/12	Y0361	Young	1	17:45	E2203397, N5661463	one male singing intermittently from near edge of flats
22/11/12	Y0660	Young	1	15:15	E2206200, N5661550	at least one mohua singing in thick bush behind streams exiting to river. No response to squeaking
1/12/12	B0669	Blue	2	14:30	E2206731, N5669304	pair of mohua foraging quietly across river from track. Birds came down to squeaker, but didn't chatter
3/12/12	B0509	Blue	1	10:03	E2205303, N5669073	one male singing and chattering; came down to bush edge in response to squeaker
2/12/12	B0769	Blue	1	9:30	E2207462, N5669131	one male heard singing. No response to squeaker on 2 Dec, but chattered to squeaker on 3 December
3/12/12	B0769	Blue	1	9:08	E2207017, N5669133	one male chattering intermittently; came down to squeak, but didn't vocalise in response
4/12/12	B0769	Blue	1	9:10	E2207910, N5669295	one male mohua heard chattering and singing periodically
4/12/12	B0869	Blue	1	9:40	E2208709, N5669276	one male heard singing and chattering across river, ~100m from track
4/12/12	B0968	Blue	1	10:30	E2209661, N5668774	one male mohua heard chattering ~70m uphill of track. Observer unable to locate bird
4/12/12	B1166	Blue	1	16:16	E2211182, N5666113	one male singing near track. Pair of mohua recorded here during fixed transect survey on 27Nov