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Editor-in-chief Annika Forsten
annika.forsten@elisanet.fi
Editor Antero Lindholm
antero.lindholm@elisanet.fi
Editor Roderick Dixon

For more information:
http://www.caluta.liitin.net/

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Cover photo Swallow-tailed Kite *Elanoides forficatus* Pichincha Ecuador 19 February 2011
(c) Annika Forsten

Black Kites Milvus migrans in Russian Altai

ANTERO LINDHOLM and ANNIKA FORSTEN (photos)

Material

We visited Russian Altai from 13 June to 26 June 2010 in the company of five other birdwatchers. Black Kites *Milvus migrans* were quite common all the way from the lowlands around Barnaul, Altaiski Krai (100-200m asl.) to the Teletskoye Lake, Altai Republic (440m asl.) and quite high up into the mountains close to the Mongolian border (to 3,000m asl.). The species was seen every day with the largest day counts being 150-200 in the lowlands and the smallest counts 2-5 in the highest areas. The birds were studied in the field and many were photographed by Annika Forsten. Photos of 27 different individuals are included in this study.

Distribution of *lineatus*

The breeding area of Black-eared Kite *Milvus migrans lineatus* has been shown differently in different sources. Ferguson-Lees *et al* (2001) plot the distribution border between eastern *lineatus* and western nominate *migrans* as going through western Mongolia. Vaurie (1965) states that the western limit of *lineatus* is close to Malyi Sosva on the Ob, the regions of Tobolsk and Tyumen, and east of the Tobol river. Cramp & Simmons (1979) refers to Vaurie and states that the intergradation zone with *migrans* is wide. Glutz *et al* (1989) mentions "Western Siberia" and suggests that the border between the two subspecies is not well known. Wassink & Oreel (2007, who treat *lineatus* as a full species) include almost all of Kazakstan as a breeding area of *lineatus* and mention that hybrids between *lineatus* and *migrans* do occur or may occur in some parts of the country during migration. They explicitly state that Gavrilov & Gavrilov (2005) are wrong in including southern Kazakstan in the breeding area of *migrans*, and add that no records of pure *migrans* from Kazakstan are known to them. This was somewhat altered in an update article (Wassink & Oreel 2008), which states that only variable hybrids occur in Kazakstan, and that no records of pure *lineatus* are known. Forsman (2007) discusses intergradation based on intermediate individuals and writes that many *lineatus*-like individuals reported in Europe have shown mixed characters. He captions one bird photographed in Altai as a "not clean" *lineatus* because of a pale iris and yellowish legs.

Identification of *lineatus*

The identification criteria of *lineatus* were published by Forsman (2003, 2007). At least some points were apparently based mainly on Japanese individuals, that is, the easternmost ones and presumably close to the type area, although that is widely defined as "China" (Vaurie 1965). The adult birds differ from adult *migrans* as follows: the sixth outermost primary is longer and more pointed in *lineatus* than in *migrans*; the primaries have distinct white bases and distinct barring (in *migrans* the primaries show indistinct white bases and indistinct barring); the cere and legs show very dull colouration (yellow in *migrans*); and the iris is dark (pale in *migrans*). The belly and undertail-coverts are lighter than the breast (of similar colour in *migrans*), the head is brown with a black eye-mask (grey and without mask in *migrans*), and the breast is streaked yellow (streaked black in *migrans*). Juveniles are more difficult to separate, but primary lengths and shapes, primary colouration and a lighter belly and vent are still good characters.

The birds in Altai

In Altai, the chin of Black Kites normally looked distinctly paler than the upper breast, but in two cases it was a similar brown. In these two birds the whole head was dark-brown and the mask was not very evident. The cap was brownish like the mantle or paler brownish, and no grey-headed birds (*migrans*-type) were photographed or seen.

Photo 1. Typical adult. A dark mask and pale chin, white-streaked underparts and a slightly paler vent are all typical characters, as well as the appearance of the underwing: the lesser underwing-coverts are warm-brown, the median ones blackish, there is a quite large paler area on the bases of the outer primaries, and the inner primaries are distinctly barred white. The nominate migrans can be even more reddish on the underwing-coverts and body, but the body is much less streaked and not much paler towards the vent. It normally has a quite grayish, finely black-streaked head contrasting with the upper breast, but not such a pale chin. It has an unbarred whitish area visible on the bases of at most two primaries (often none, but it can show quite a large brownish-grey area with very indistinct barring). Chuya road, Altai Republic, Russia, 25 June 2010.

The breast and belly were brown with pale brown streaking in all individuals, though the prominence of this streaking was variable and two were streaked on the upper breast only. The area around the legs was clearly paler than the upper breast in all but two individuals, both of which were from the lowlands.

The most typical colouration of the underwing coverts was as follows: lesser coverts uniform warm-brown (the same colour as the ground-colour of the body), the median coverts blackish, and the greater coverts dark brownish-grey, with barring in some birds. The greater under primary-coverts varied from dark to quite pale and were barred. There was an unbarred white area at the bases of 0-6 primaries, average 4, and one with value 0 from the lowlands (n=24). On the inner primaries there was distinct blackish barring on a white background in all but three individuals, two of which were from the lowlands.

The eyes seemed dark in all the close-up photos, and the colour of the cere varied from almost colourless to quite yellow, with most birds showing a dull yellow cere. Most birds had yellowish or pale yellow feet. In 19 out of 25 cases the primary moult had not yet started, and the others retained 7-9 old primaries.

Only two of the photographed birds were second calendar-years nor were many so aged in the field.

Photo 2. Typical adult. Uniform dark brown overall, with paler brown streaks on the neck and breast. The chin is pale and the dark eye mask quite evident. Very dark eye, yellowish cere and legs. Kosh Agach, Altai Republic, Russia, 21 June 2010.

The young birds still showed a paler head, with more strongly streaked underparts and underwing-coverts (it was difficult to decide what was the ground colour)

The birds elsewhere in the *lineatus* area

Our experience of *lineatus* in eastern China, Korea and Japan is limited, but in addition, several photos of kites from these countries were studied, especially from Japan. Our personal experience of kites from India, Central Asia and Russia is more extensive, but the separation of *govinda* and *migrans* intergrades is the main issue there, so the variation of pure *lineatus* is not so easy to study.

The Japanese birds seem to be quite similar to birds from Altai. The eyes are dark and the legs mostly grayish- or greenish-toned, but they may be yellowish or pale yellow, and the colour of the cere varies similarly. The colouration of the head, underbody and underwing including the primaries seems similarly variable, but completely overlapping with birds in Altai.

Discussion

Black Kites from Altai are quite similar to easternmost typical *lineatus*, and can clearly be placed in that taxon. It may be that, on average, the Japanese birds have less yellow legs and cere than the birds from Altai, but the overlap is complete.

It seems possible that birds in the lowlands of Altaiskyi Krai on average are different from those in the higher country of the Altai Republic. At least, some nominate-like features (dark vent, no uniform pale area on the bases of the outer

primaries, no distinct white and blackish barring on the inner primaries) occurred only or mostly in birds from the former area.

There are many other distribution borders of closely related taxa in this area also (e.g. between *alba* and *personata* Wagtails, between grey-headed and black-headed Eurasian Goldfinches, between Carrion and Hooded Crow). However, only four kites were photographed in the lowlands, so further study is clearly needed.

Photo 3. The same individual. Darker brown and less rufous than the bird in Photo 1. Kosh Agach, Altai Republic, Russia, 21 June 2010.

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Photo 4. The same individual. This bird has already dropped the two innermost primaries. Kosh Agach, Altai Republic, Russia, 21 June 2010.

Photo 5. Dark adult with uniform brown colouration. The cere is only slightly yellowish. Kosh Agach, Altai Republic, Russia, 21 June 2010.

Photo 6. This adult individual is very typical in most respects, but it has no white barring on the inner primaries, although much less distinct grey bars than in most individuals from the area. Elangash, Altai Republic, Russia, 23 June 2010.

Crossbill call types in Finland 1998-2009

ANTERO LINDHOLM

Some information about the geographical distribution of Crossbill *Loxia* call types in Europe has been published (Robb 2000, Summers *et al* 2002, Förschler & Kalko 2008), although much work remains to be done. Very little has been published about the situation in Finland. For this study, recordings of Crossbills by different recorders were collected and analysed. Some information about the classification and identification of the calls is presented, and the variability is also discussed.

Material and Methods

I analysed 254 sound recordings of Crossbills from Finland. The recorders were Lauri Hallikainen, Harry Lehto, Tero Linjama, Jarmo Pirhonen and myself. Of these 242 were identified to call type. Only flight and excitement calls were identified, the unidentified recordings contained only song, begging call or other sounds. The call types were classified in two phases, first by listening, then by looking at the sound spectrogram. All recordings of reasonable quality with flight calls could be classified to type. The monthly and yearly distribution of the recordings is presented in Figures 7 and 5. Most of the recordings originate from the Helsinki area or the southwest, but many also from other parts of the country. There were recordings from the northern Finland (Kuusamo and northwards) from all years 2004-2009. The monthly coverage was unsatisfactory in winter, which is surprising, since crossbills normally occur in the country in winter, and they start to breed during that season. Winter is quite silent in the Finnish countryside, so it may just be that the recorders left their equipment home on their winter treks. In March, many species start to vocalise, and, therefore, there are also many recordings of Crossbills. Most recordings are from the most recent years and there are very few from some earlier years. Moreover, some successful recording trips with many recordings dominate in some months or vocal types. So the coverage of the material is far from satisfactory. Therefore, these results are only preliminary and it is to be hoped that during the coming years more and better distributed recordings will be obtained.

The sound spectrograms were plotted using Syrinx by John Burt, the maps were made using Google Earth, and the charts using OpenOffice.org.

Occurrence of call types in Finland

The colloquial names are those presented by Constantine *et al* (2006).

Type C "Glip Crossbill"

This call type was clearly the most common, 120 recordings (50%) contained flight or excitement calls of this type. It occurred in all areas where calls were recorded (Figure 1) and it was common in all seasons (Fig 8) for the whole period (Figure 6).

Parrot Crossbill *Loxia pytyopsittacus* ("type P")

The call type corresponding to the visual type of Parrot Crossbill was the second most common crossbill call type, with 61 recordings (25%). Most recordings were from the southwest or the north, and it seems to be scarcer in the lake area (Figure 2). This may genuinely reflect the situation based on the other information we have about the

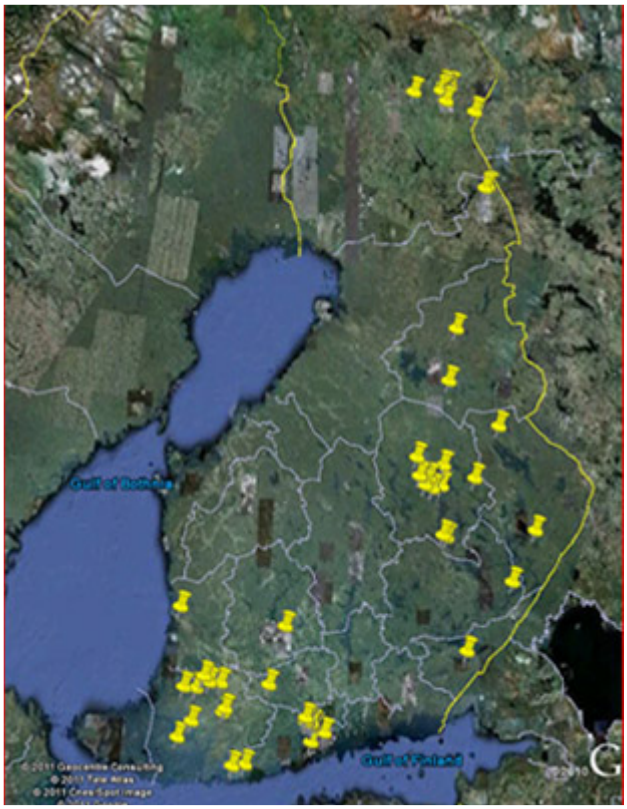

Figure 1. Geographical distribution of the recordings of type C.

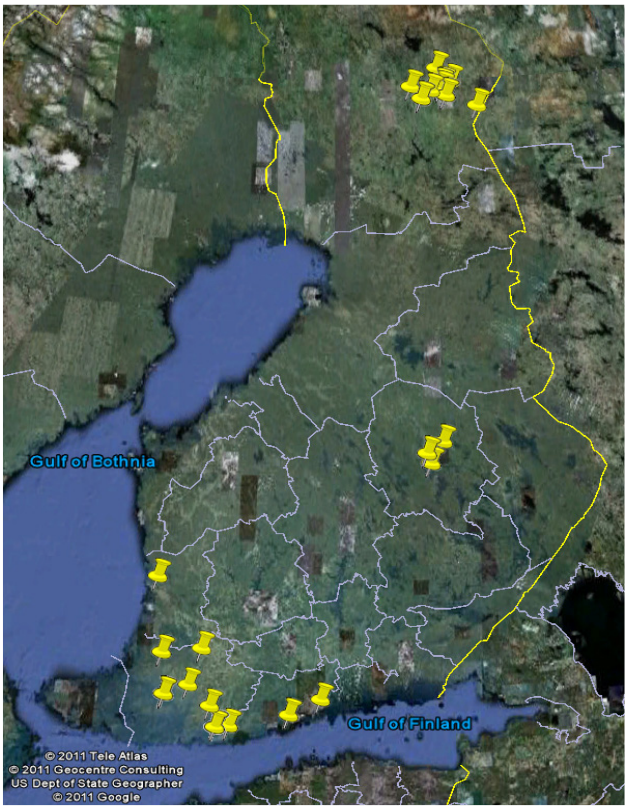

Figure 2. Geographical distribution of the recordings of Parrot Crossbill.

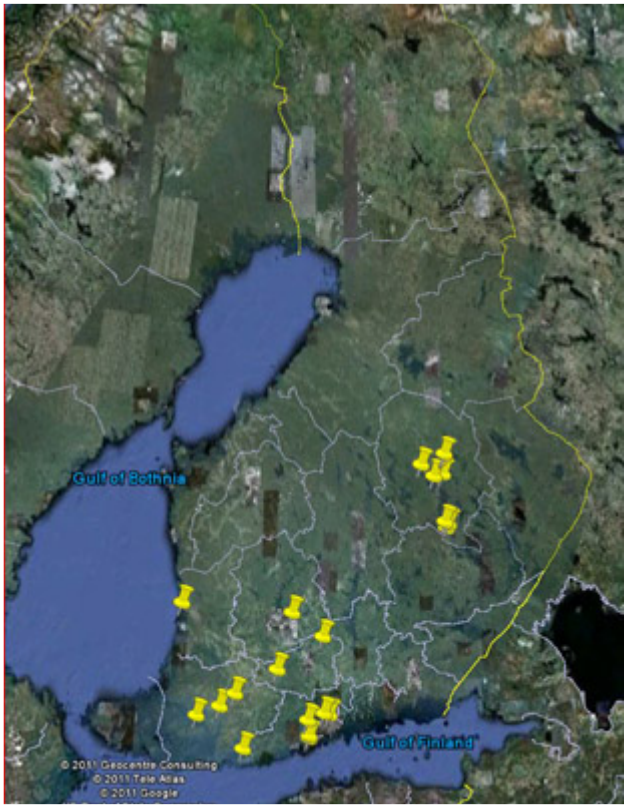

Figure 3. Geographical distribution of the recordings of type A.

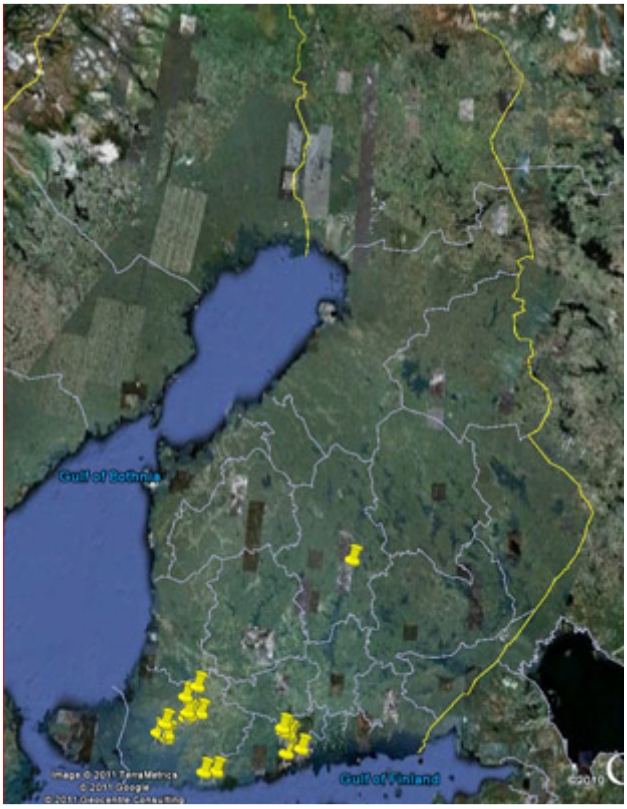

Figure 4. Geographical distribution of the recordings of type X.

distribution of Parrot Crossbill (e.g. Väisänen *et al* 1998). There was only one winter recording, and most were from June and October (Figure 10). June is normally a peak migration month for Crossbills, and this migration continues into autumn, and many Parrot Crossbills were recorded in migration "hot-spots" in October. It seems that the recorders have not worked much at the breeding sites at the correct time, and that in October comparatively large numbers of Parrot Crossbills are moving. Parrot Crossbills have been recorded during the whole period (Figure 6).

Type A "Wandering Crossbill"

23 of the recordings (10%) included this type. Type A has not been recorded during the winter or late autumn (Figure 9), nor in the north (Figure 3). The first may be due to observer bias but the latter may well reflect the truth. Type A seems to have been quite common from 1998 to the early 2000s.

Type X "Parakeet Crossbill"

37 of the recordings (15%) included this type. The type was recorded only in the south (Figure 4). The monthly distribution (Figure 11) is not very remarkable, but the yearly one is (Figure 6). The first two recordings were obtained in 2000, and in 2002 there was one more, but all the others are from 2006 and later. In recent years, the type has been quite common in the southern part of the country, clearly the third most common after C and P. So it seems that X has replaced A. These two are somewhat related, for example they have quite similar excitement calls (Constantine 2006) and some difficult intermediate calls occur, see the identification chapter below. It should be noted that neither A nor X were recorded in the north.

Other call types

The only other clearly different call type was noted in two recordings which resembled type F, "Scarce Crossbill". This was recorded twice, by Lauri Hallikainen (Savukoski, 28 March 2007) and by Antero Lindholm (Espoo, 3 March 2007). A spectrogram is presented as Figure 12. See the identification section.

Other data

Types A and C were recorded five times in the same flock, types C and X 12 times, P and A/C/X only twice. It seems that call types prefer their own kind when flocking, and Common Crossbills prefer other Common Crossbill types rather than Parrot Crossbills. This should be tested with larger material and also by making some estimates of the number of birds in a flock. The behaviour of the birds recorded should also be taken into account.

Song was recorded between 17 December and 19 August and begging calls between 15 May and 15 July. It is also interesting that in the Nuuksio National Park, just northwest of Helsinki, 44 recordings were made, all between 2006 and 2009 but no Parrot Crossbills were recorded. The area includes large areas of pine forest and should be a prime habitat for *pytyopsittacus*, and is normally regarded as such. (It should be mentioned that in 2010, after the period of this study, some were recorded during the breeding period).

About the identification of crossbill call types.

Although the characteristics of the call types are well presented in the literature, there is less information about the variability of the flight calls. The material of excitement calls was insufficient for any kind of analysis. See Robb (2000) and Constantine (2006) for more information.

The calls were measured from sound spectrograms. When measuring the time axis, a FFT window length of 256 was used, and a FFT window length of 1024 for measurements of frequency axis. Only one call per recording was measured, the second

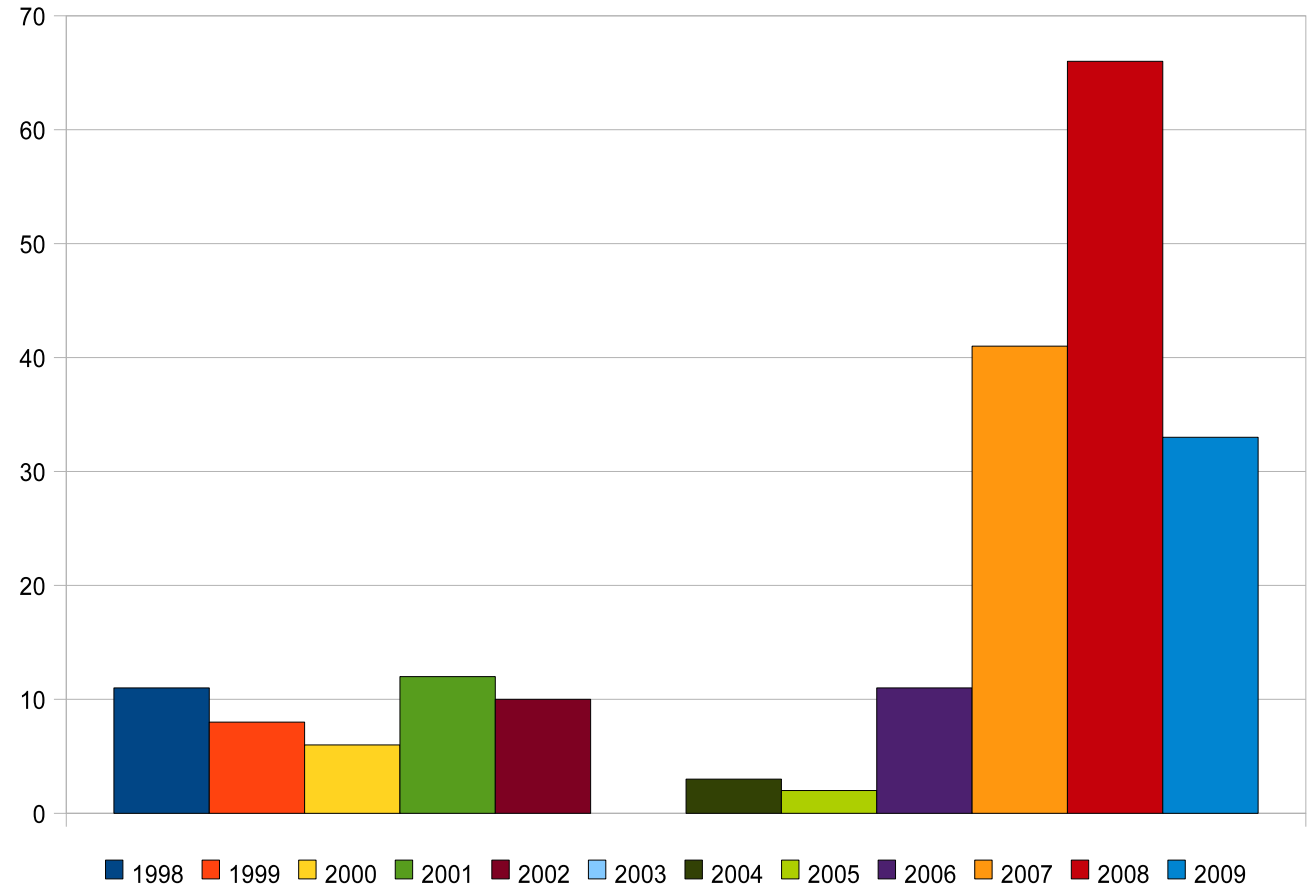

Figure 5. Yearly distribution of the recordings.

call of good quality from the left. The recordings are from single or multiple individuals, and it was not often possible to judge whether the other calls in the recording were from the same individual or from different birds, so only one call was selected.

Type C

Type C is both the most common and easiest to identify. The flight call sounds long and with a clear L-sound. The typical call in spectrograms goes first shortly up, then down and then longer upwards. There is some variation in the call in the spectrograms, which are not separable by ear (at least, most human ears). The variation seems to be continuous. Normally, the highest point is at the end, but the last part upwards may be shorter and not reach much higher that the preceding high point. This may be a call from a recently fledged bird with no fully developed call. In addition, there may be an additional turn down at the end, also there may be an additional down at the beginning or both at the beginning and at the end. Highest frequency 3811-5696 Hz (mean 5068 Hz). Lowest frequency 1368-2157 Hz (mean 1974 Hz). Length 0.046-0.070 sec (mean 0.068 sec), n=14.

The type C excitement call is also easy to identify. It is not nasal at all, somewhat thin and simple, and sounds relatively high-pitched. (However, it resembles the excitement call of type F, Robb 2000).

Type A

The first weaker part of the call is upwards, the height of this upwards part is about half of the whole note. The highest part of the call is next (near or over 5kHz) and is followed by the

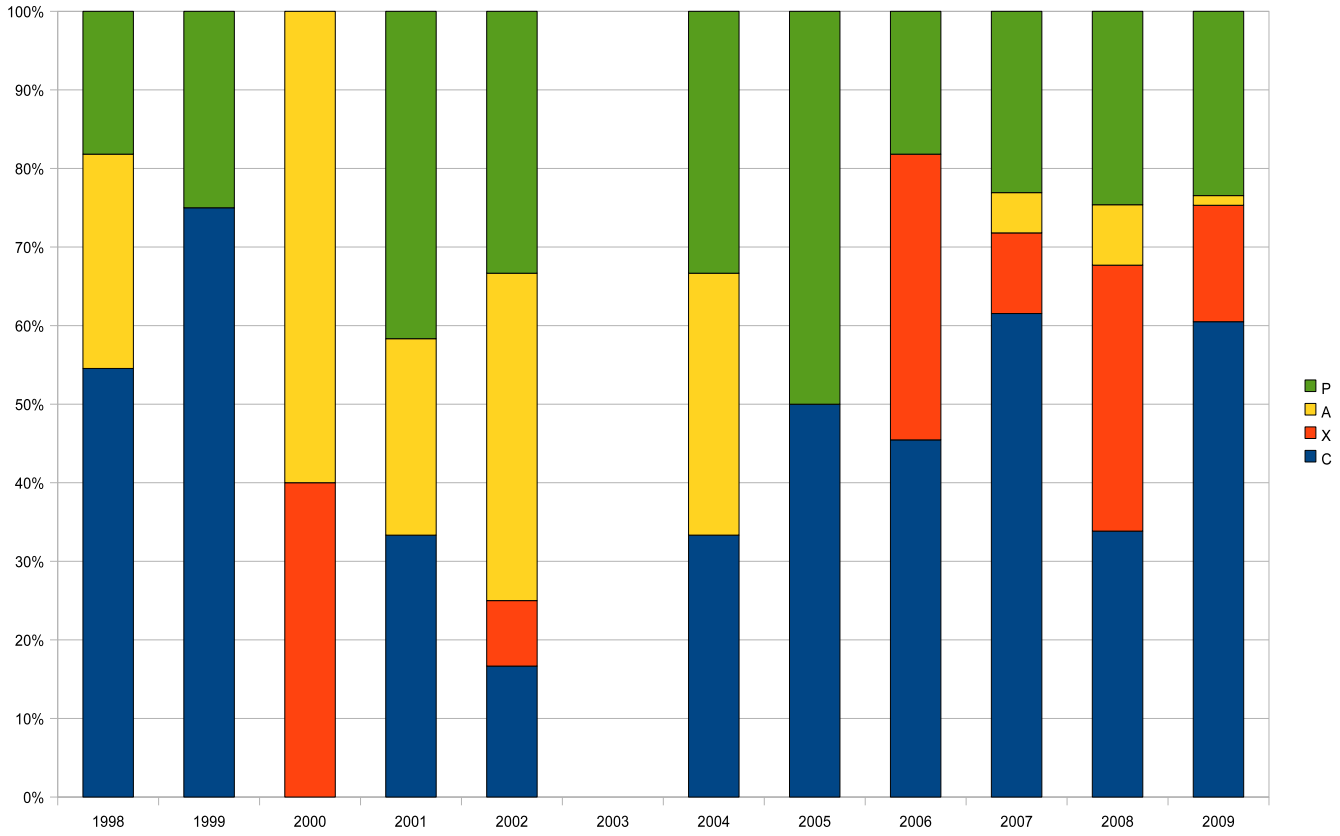

Figure 6. Yearly distribution of the recordings by type.

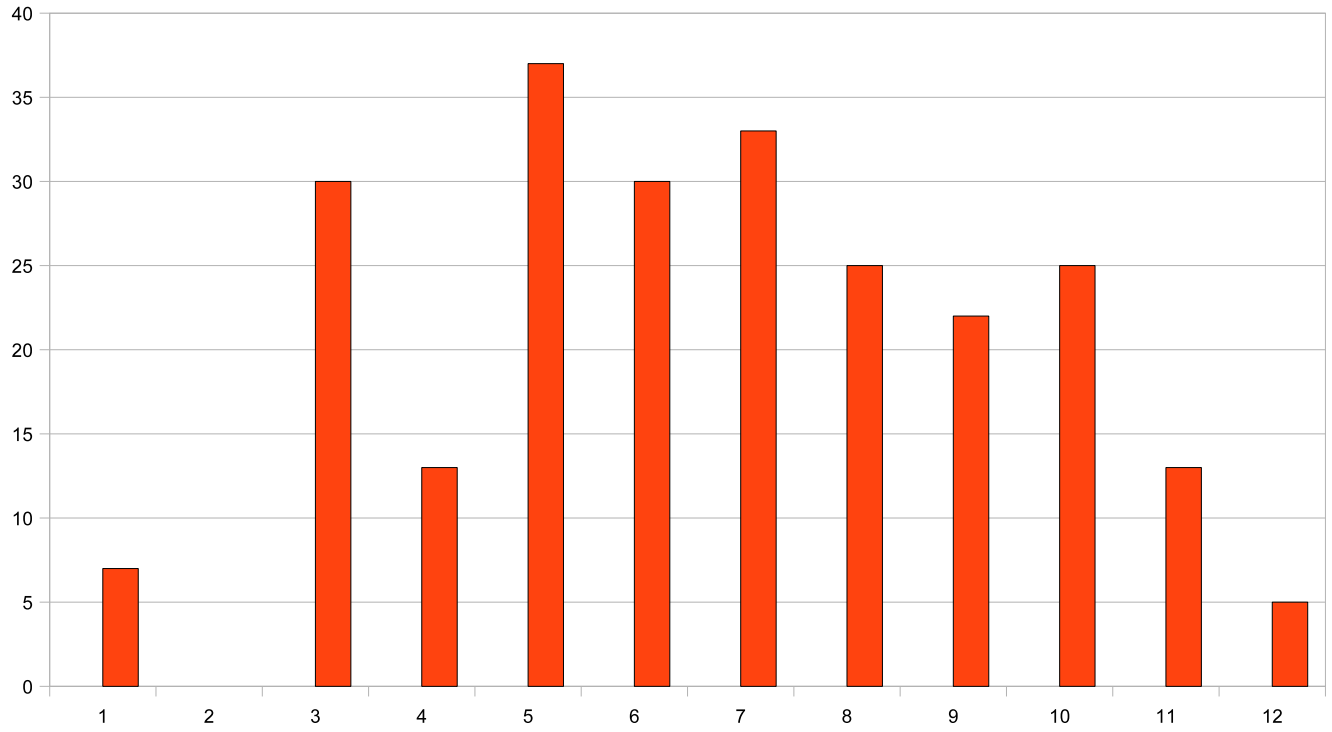

Figure 7. Monthly distribution of all recordings.

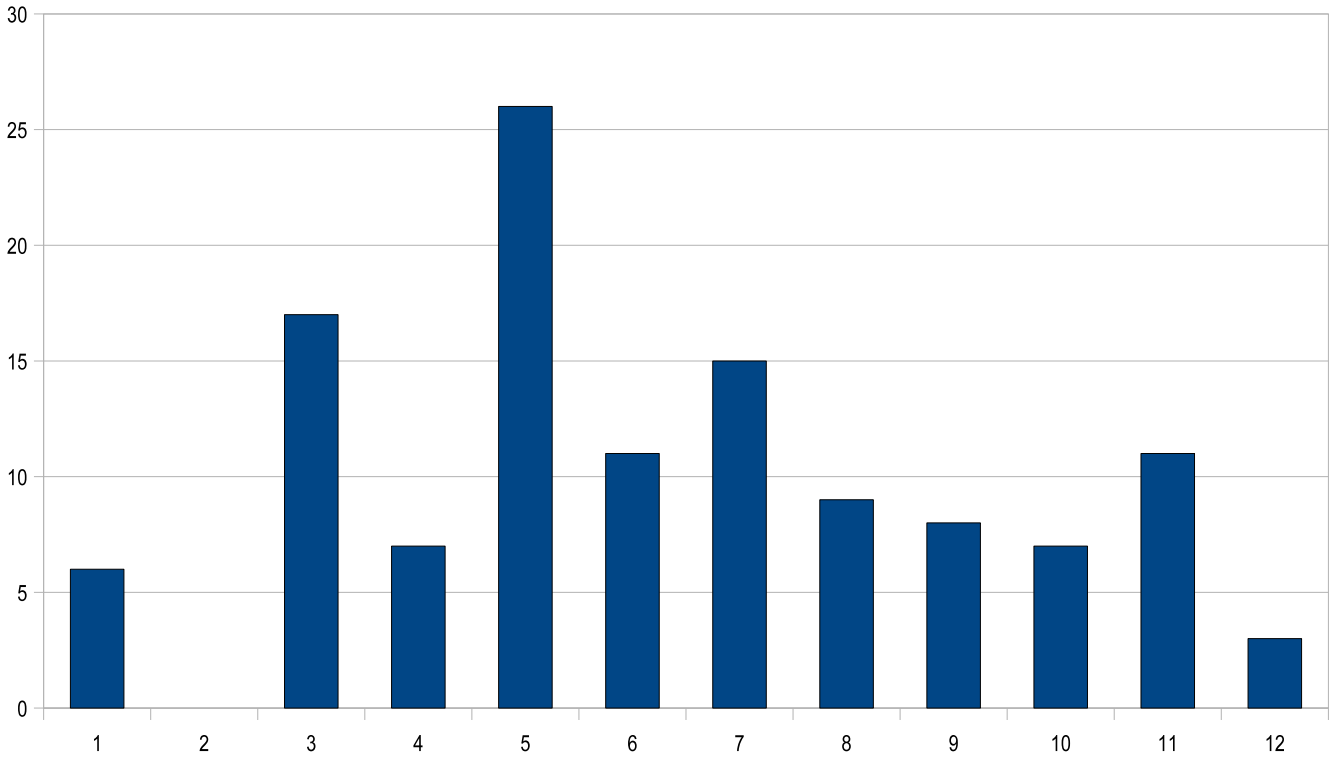

Figure 8. Monthly distribution of the recordings of type C.

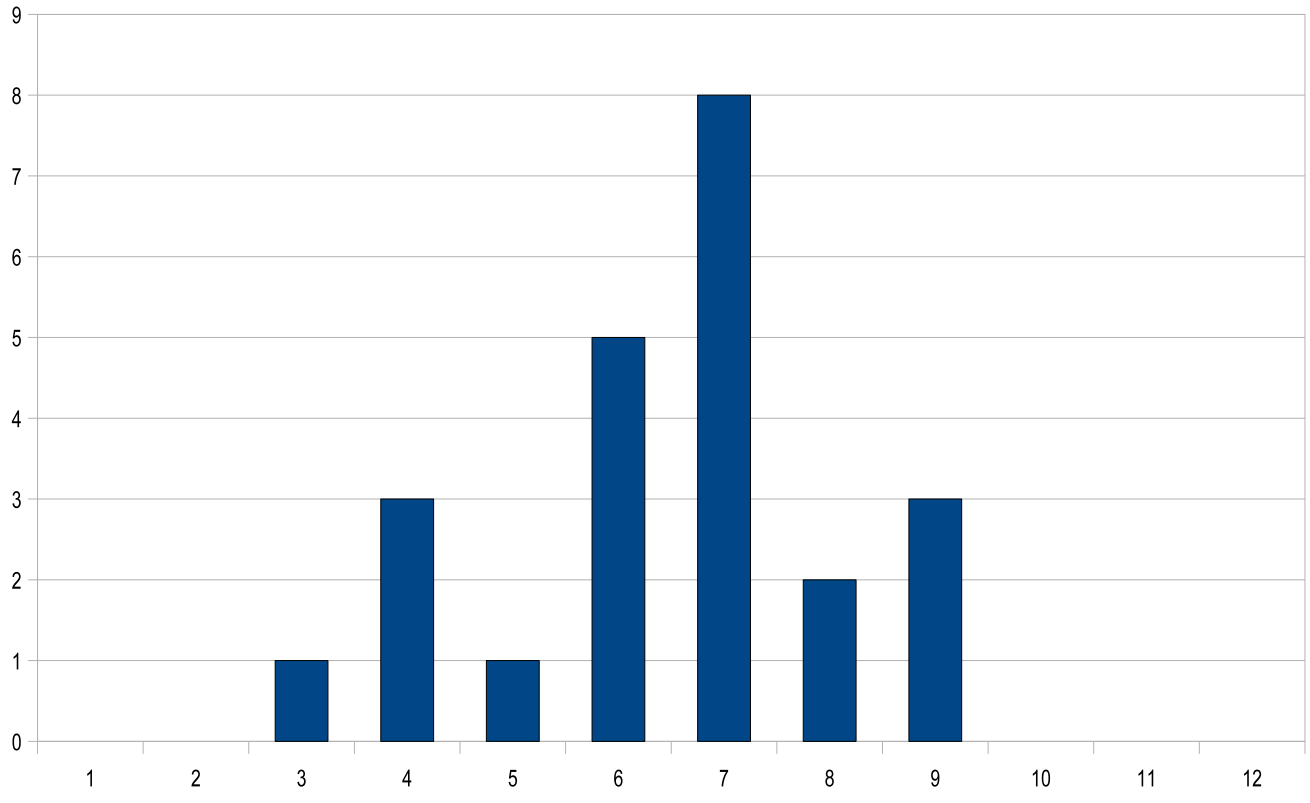

Figure 9. Monthly distribution of the recordings of type A.

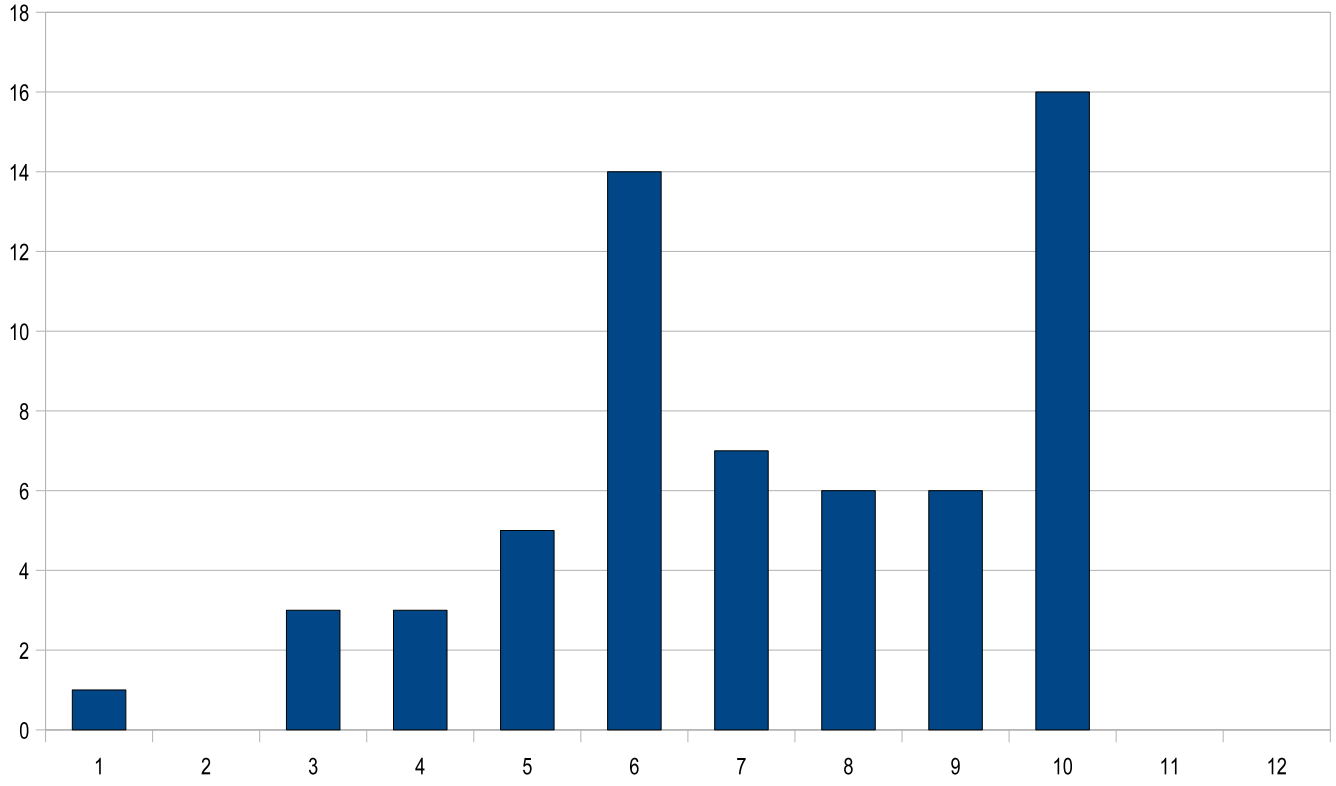

Figure 10. Monthly distribution of the recordings of Parrot Crossbill.

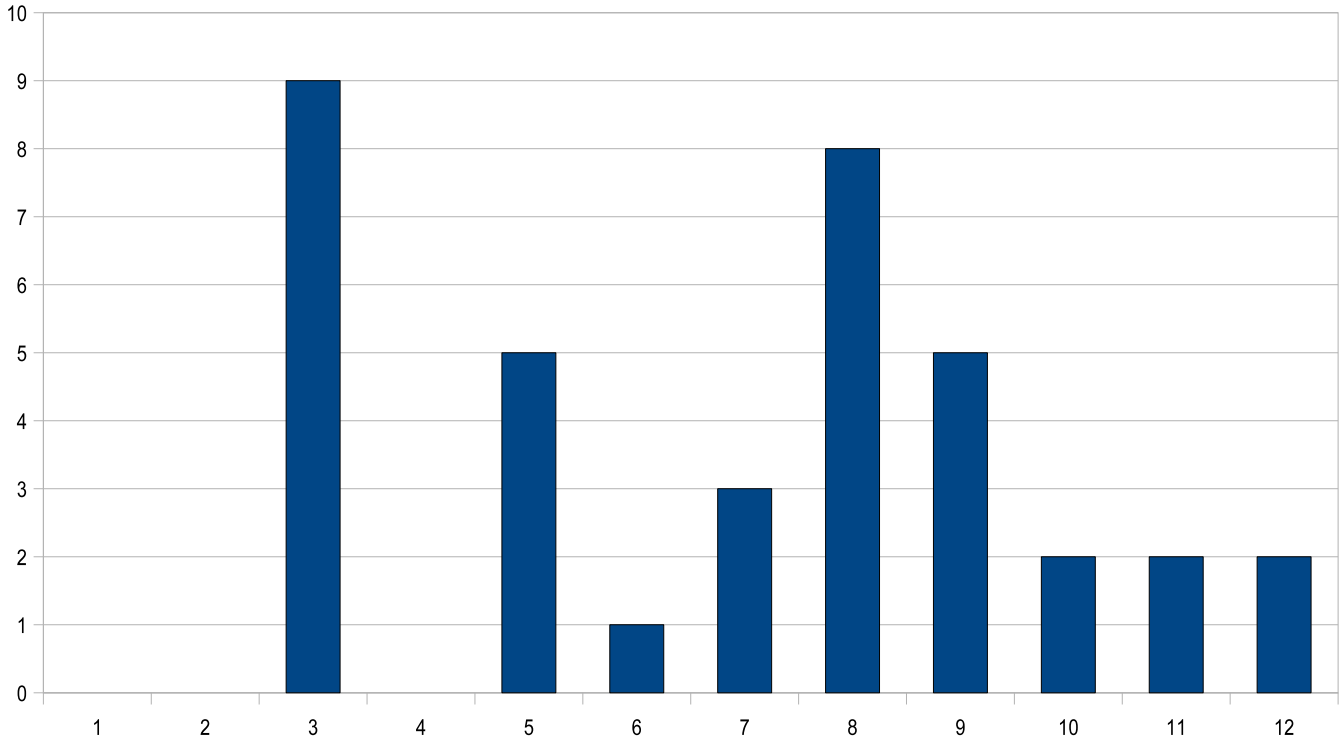

Figure 11. Monthly distribution of the recordings of type X.

strongest part: a long downward part, which is somewhat curved in the middle and then the note reaches its lowest point at around 2kHz. Highest frequency 4930-5709 Hz (mean 5358 Hz), lowest frequency 1184-2209 Hz (mean 1549 Hz), length 0.043-0.067 sec (mean 0.050 sec), n=7. There is some variation with some birds having a less distinct initial ascending note and also the highest part of the call may not be very strong in some cases. In a spectrogram it may resemble some Parrot Crossbills, but higher pitched (highest frequencies much over 4 kHz).

Type X

The spectrogram of type X was well described by Constantine (2006) as resembling lowercase “n”, with parts going first down, then up and down and the first two parts being closer to each other than the final descending part. The highest part is at the start and reaches over 4kHz. The next angle is about as low as the final angle, but may reach considerably lower. Only concerning this detail is there much variation inside typical X and this type is quite distinct. Maximum frequency 4209-4892 Hz (mean 4514 Hz), minimum frequency 1924-2152 Hz (avg. 2043 Hz), length 0.060-0.083 sec (mean 0.072 sec), n=8. The flight call of type X is clearly longer than that of type A. See Figure 13 for comparison of A and X calls.

Type P

The Parrot Crossbill calls are variable. They are low-pitched, mainly descending notes, with variable initial part. Here they are divided in to three subtypes, although the types do not seem to be distinct, and their definition here is mostly to help describe the variation.

P2: See Figure 14. Goes mainly downwards, and the main part does not reach 4kHz. The initial part goes up, but is only about half as long as the second, downward-going part of the call. There is much variable modulation in this first part and in the spectrogram it often looks quite "thick". Maximum frequency 3526-4072 Hz (mean 3735 Hz), minimum frequency 1188-2769 Hz (mean 1921 Hz), length 0.036–0.060 sec (mean 0.047 sec.), n=10.

P3: See Figure 15. Like P2, but there is a distinct downward initial part, which may reach almost as low as the main downward part at the end. Maximum frequency 3917-4322 Hz (mean 4115 Hz), minimum frequency 1939-2722 Hz (mean 2344 Hz), length 0.045-0.064 sec (mean 0.059 sec), n=4.

P4: See Figure 16. Like P2, but there is a distinct part at the beginning. It is more complex than in P3: first a short up, then a short down (almost as low as the last down) – a long up – a long down. Maximum frequency 3891-4043 Hz (mean 3950 Hz), minimum frequency 2330-2742 Hz (mean 2470 Hz), length 0.065–0.073 sec (mean 0.068 sec), n=4.

Normally, Common and Parrot Crossbills are possible to identify vocally. Some experience and concentration is needed, and especially some knowledge of the variability of the Common Crossbill call types. However, 10 recordings were somewhat difficult to classify. For example, one spectrogram shows a quite normal P shape, but the call is higher-pitched than is normal for Parrot Crossbill (see Figure 17, a flock recorded by AL in Jäppilä, June 2001)

Other types

The two recorded flight calls of type F were not identical (although very similar to the ear), and both were slightly different from the examples in Robb (2000). However, the three-pronged structure was still evident (Figure 12). The length of the call of the Espoo bird was 0.072 sec and the frequency range 2895.04 Hz. To the ear they most resemble type X and at least the Espoo bird was dismissed as such in the field. In practice, type F is difficult to identify in the field.

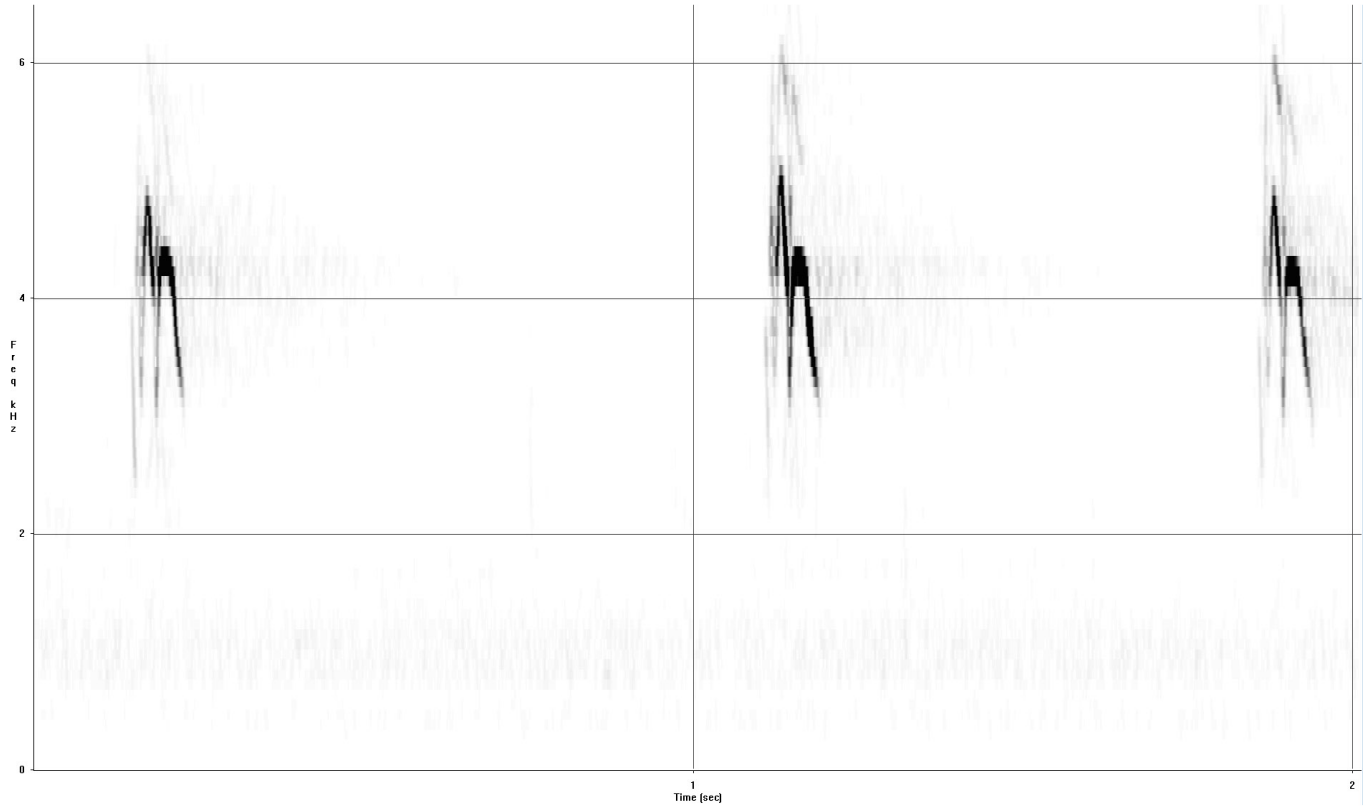

Figure 12. Sound spectrogram of type F. Recorded 4 March 2007 in northern Espoo, close to Helsinki.

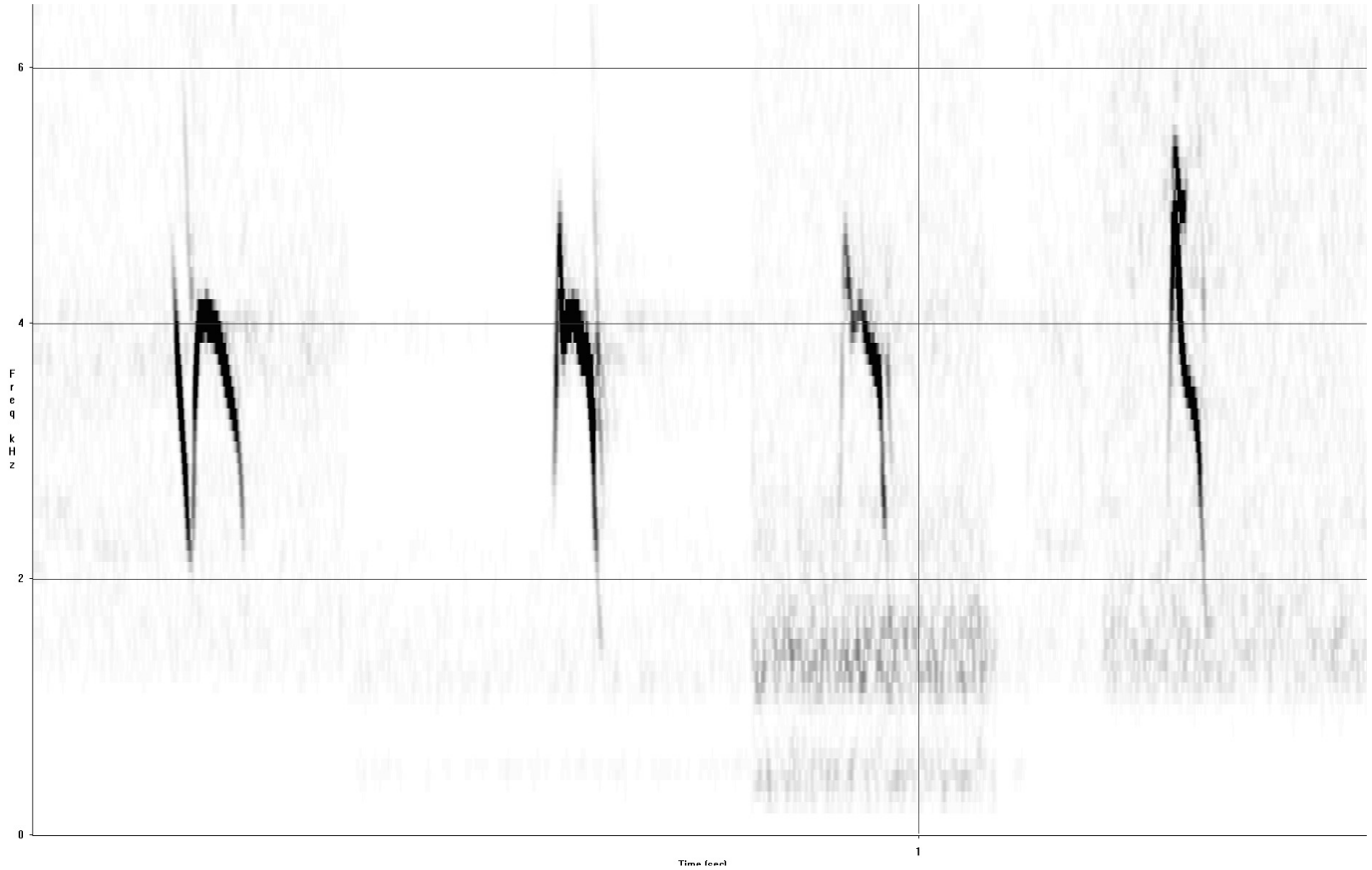

Figure 13. Comparison of flight calls of type X (one) and type A (three).

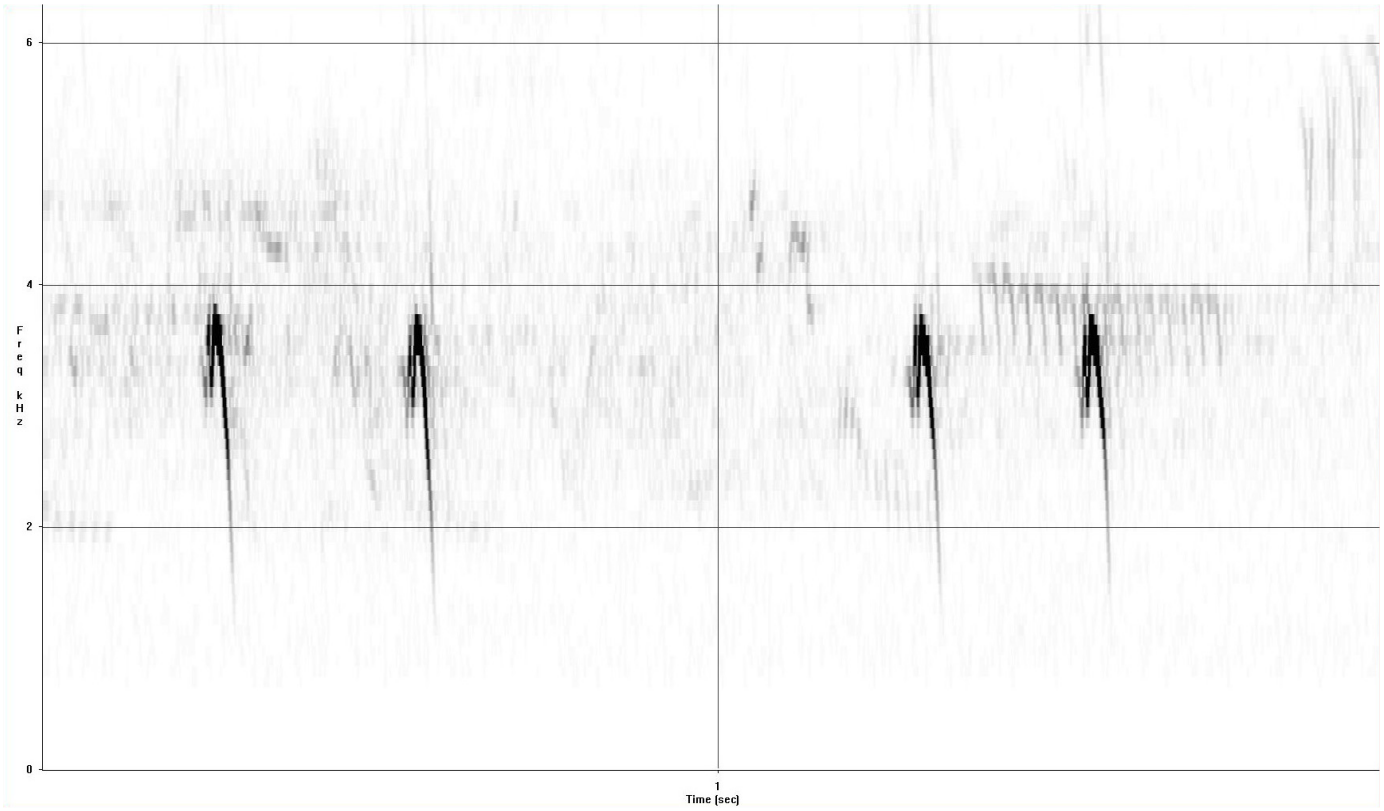

Figure 14. Sound spectrogram of type P2. Recorded 22 June 2002 at Nauvo, in the archipelago of SW Finland. The downward direction of the call is very dominant, but there is some modulation at the beginning.

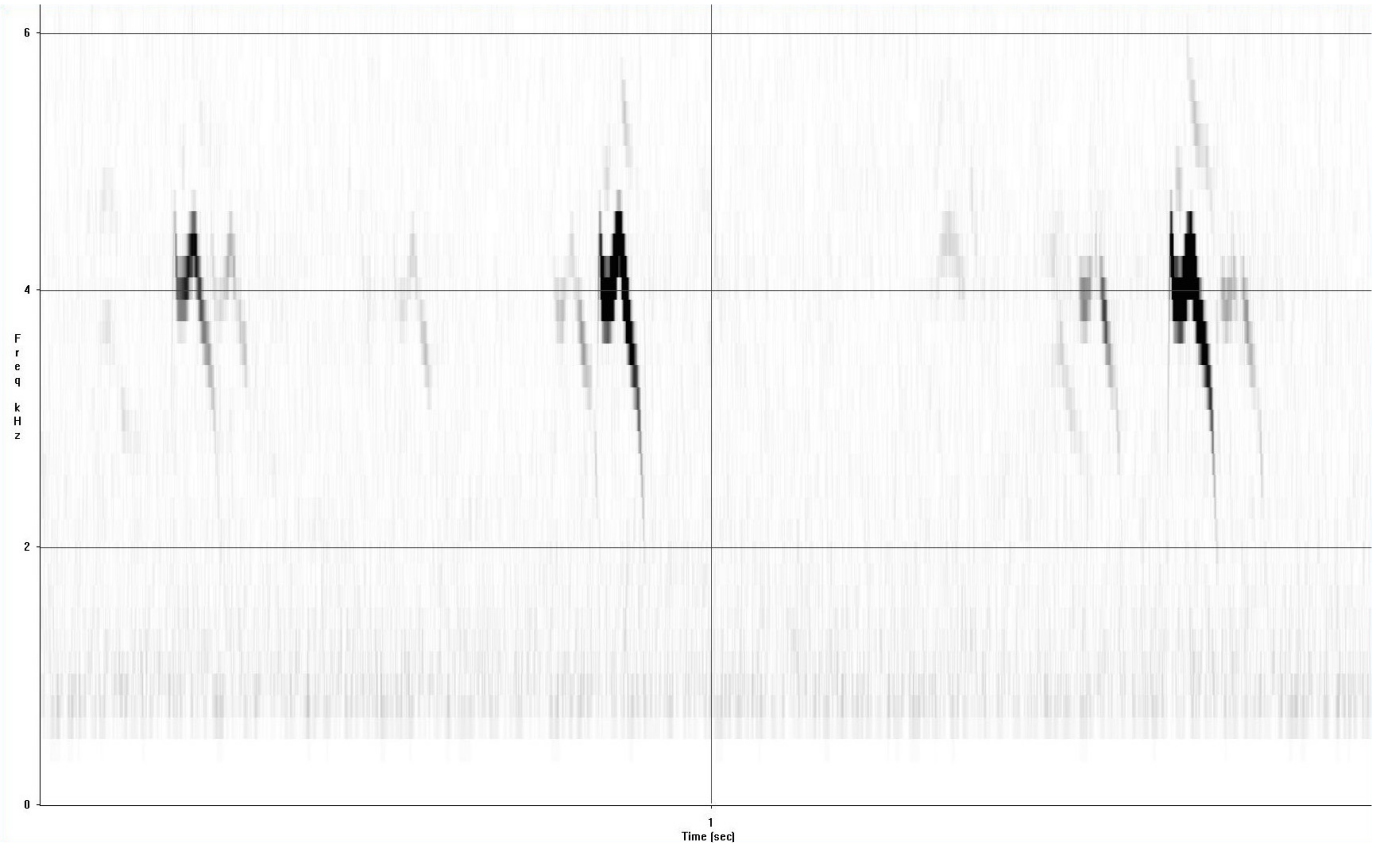

Figure 15. Sound spectrogram of type P3. Recorded June 2001 at Jäppilä, central Savo, Central-Eastern Finland. Resembles the previous call, but there is clear additional downward part at the beginning.

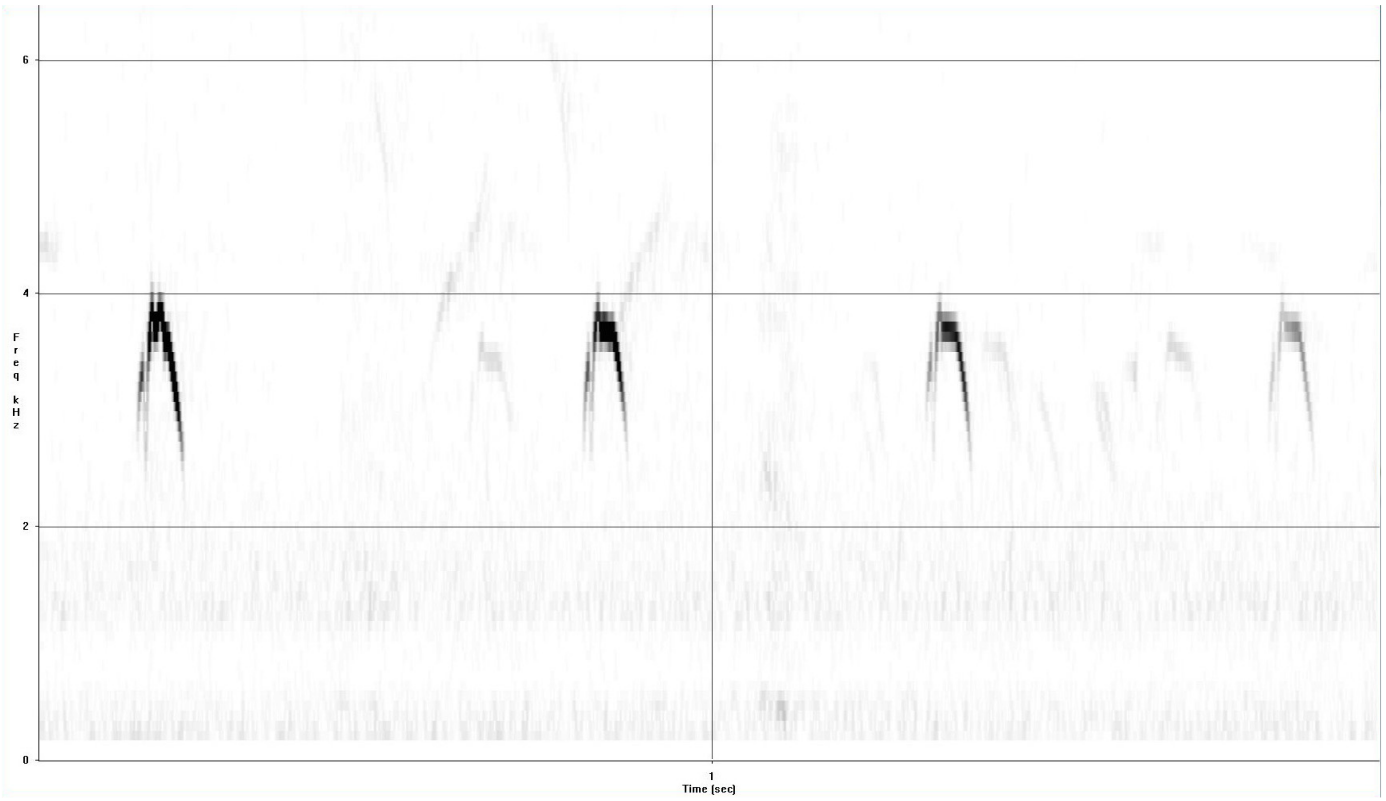

Figure 16. Sound spectrogram of type P4. Recorded 17 October 2009 at Hanko, southern Finland, the southernmost tip of the mainland. Otherwise like P2 but there is a distinct additional part at the beginning.

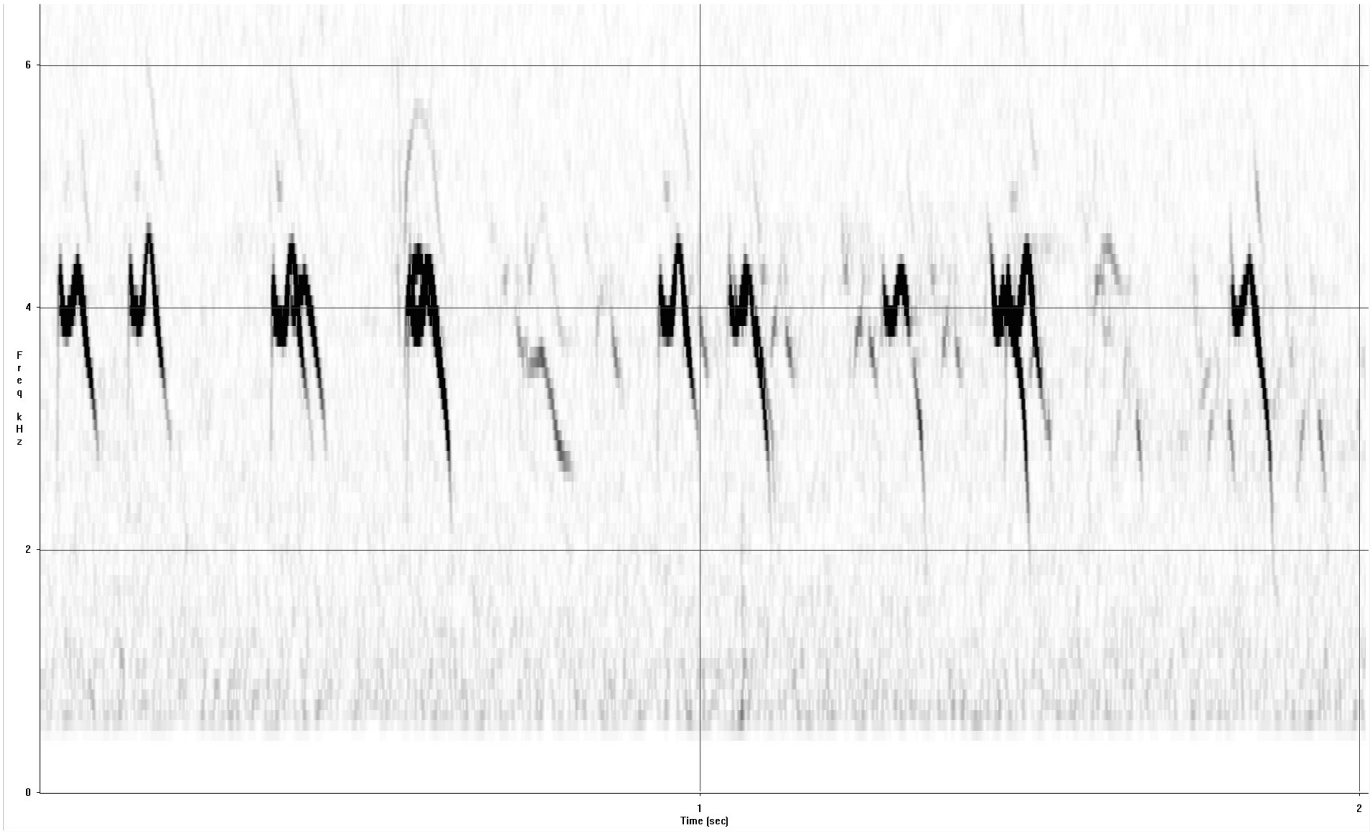

Figure 17. Sound spectrogram of a flock of Crossbills, recorded June 2001 at Jäppilä. The shape of the calls is like Parrot Crossbill, but the pitch is like Common Crosbill.

Future studies

It is hoped that Crossbill calls will be recorded in Finland in the future to at least the same extent as in 2009. Then it should be possible to get a more complete picture of the occurrence of the call types, especially concerning the geographical and seasonal occurrence. Also, the occurrence of the call types should be studied in relation to the cone abundance and observed migration of Crossbill species.

Acknowledgements

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