Finches and Cover Crops at Sites in North East Fife in Winter 2003-2004

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Introduction

Over the last decade or so, four finch species have declined very markedly in this area of Fife. Corn Bunting *Miliaria calandra* and Eurasian Tree Sparrow *Passer montanus* are well on the way to extinction and Yellowhammer *Emberiza citronella* is much less common. There are still reasonable numbers of Common Linnet *Carduelis cannabina* but many fewer than the large flocks of twenty years ago.

Six or seven years ago the Strathtyrum Estate which farms Kippo and adjacent Hillary farms in Nort-East Fife started a policy of planting permanent and semi-permanent strips of land with crops for game birds (This policy is also pursued on Balgove, Strathtyrum and Pusk farms the other side of St. Andrews). I have been fortunate to be allowed free access to study the value of these crops to songbird species and a great deal of help and co-operation from the estate and the keeper. I had been recording at a Constant Effort Site in Kippo for many years before these changes took place and have more recently been running a RAS scheme on Chaffinches *Fringilla coelebs*. Four years ago I started on a project to monitor use of the game mixes by finches as well as recording movements. The Chaffinch population is now largely colour ringed. Flocks and species using the various crops have been recorded throughout each winter on a virtually daily basis.

Habitats

There are wide spaced strips of mainly hardwoods planted with either a game mix in between them or a permanent planting of canary Reed Grass (*Miscanthus sp*.). There are open areas of game mix, areas of Triticale *Triticale spp.* and a permanent area of Jerusalem Artichokes *Helianthus tuberosus*. The game mix has usually been Radish *Raphanus sativus* and Mustard *Brassica hirta* (and perhaps spring Rape *Brassica napus*) as an annual crop and Kale *Brassica oleracea* as a biennial crop. The game mixes this year grew especially well and the Artichokes in the Laverock Law field have matured most excellently. Tom Mayes provided me with details of the crops. There is about ½ ha of Artichokes, about 2.5 ha of Triticale (3 plots) , 0.5 ha of pure game mix (Radish and Mustard) (1 plot), 3.5 ha of game mix between rows of mostly hardwood trees (Radish, Mustard but a good germination of Kale to flower and seed in 2004) (2 plots) , 1.43 ha of Canary Reed Grass and other herbs between wide rows of hardwoods (1 plot) and about 2.5 acres of grass margin (3 plots).

Several roofed, wooden feeding platforms are maintained with bait as well as several areas where bait is regularly scattered on the ground in small quantities. This bait in

2003/04 was rape, crushed barley, sunflower seeds and broken wheat plus some mixed weed seeds.

Techniques

Initially, mist nets were used but these proved unsatisfactory; especially when the tree rows were first planted. Permanent traps were then tried that were set about once per week, This worked in 2001 when there was frost and snow cover but has since been abandoned as it is not effective most years. In 2002, two shelf mist nets were bought but these were not successful. Full-sized nets, the birds see; and two shelf nets, they fly over. This year, most birds have been caught with whoosh nets while mist nets have been successful in the Artichokes.

Crops

Game mix between rows of trees: This crop was used by Linnets from late autumn and varyingly by Chaffinch most of the winter. The Common Linnets tend to fly in and out of this crop almost vertically and then fly on to the tops of adjacent, mature Pine and Larch in adjacent shelter belts. They are still proving very difficult to catch. Greenfinch also feed in these crops and clearly mainly take the large Radish seeds from the strong pods and leave the mustard to Linnets and Chaffinch. The kale is also used in the early autumn in the years it flowers by the same species but has usually fully shed all the seed by late autumn.
Triticale: This comes into its own after Christmas. Roe Deer *Cervus dama* nibble the tops off in the autumn, but after the crop has been flattened by winter gales and the ears lie on the ground it is highly attractive to Yellowhammers, as well as Greenfinch and, critically, to Corn Buntings. The main Kippo planting of this had up to 70 Common Pheasant *Phasianus colchicus* on it after the shooting season and they made big inroads into the crop available. However, this crop was particularly successful because it was planted next to Artichokes.
Artichokes: This crop has been a real eye opener. It had about 80 Reed Buntings *Emberiza schoeniclus* in from early in the autumn as well as a lot of Chaffinch. Underneath, the crop was relatively clean of seed and the attraction seems to be the cover and refuge it provides. All winter, it has been used by a range of species (including Tits *Parus sp*.) that use it as a hedge. Many times, I watched Eurasian Sparrowhawks overflying with the passerine species quickly flying into the safety of the jungle of stems. At Hillary, where the Triticale and game mix are out in the open with a very few Hawthorns nearby, the crops are very often empty of birds. If finches are present, they fly away long distances when disturbed and often do not return that day.

Species Composition

Just over 1500 birds have been handled, about 2/3 finches.

	2001/02				2002/03				2003/04				2003/04
Species	**All**	**New**	**R**	**C**	**All**	**New**	**R**	**C**	**All**	**New**	**R**	**C**	**Estimated Population**
Brambling	12	12	2						40	25	15		50
Chaffinch	81	68	13	1	137	85	52	1	323	202	121	6	800
Goldfinch		2							316	160	156	4	200
Greenfinch	93	85	3	1			4		232	185	147	5	300
Linnet	10	9	1	1		3			3				300
Reed bunting									60	50	10	2	80
Yellowhammer	4	4			29	25	4		124	109	11	1	250
Cornbunting													30
Treesparrow													15
	200	180	19	3	166	113	60	1	1098	731	460	18	2025

Table I Catches over the last three years. Numbers of Chaffinch, Greenfinch and Linnet have been fairly similar in all three years although catches varied. The other species have mainly occured this last winter. R = retrap, A control C is a movement of more than 6 kms.

Chaffinch. This is the commonest species, with perhaps up to 800 this year. Many are colour ringed. A picture is beginning to emerge that by early winter flocks have moved in to join the local birds and perhaps the bulk of these flocks are young birds. In the late spring (March onwards) a higher proportion of the Chaffinches are local and (in late March) we already have evidence that the winter flock is dispersing back to more distant sites. This year, a warm spell in mid winter saw an early dispersal and although it was cold throughout late February and March, many were singing on territory. In 3 or 4 years the winter study and the RAS study combined will produce a real understanding of this species. In Kippo wood, the population has more than doubled in the last 4 years and this seems likely to be due to the virtually year-round food supply associated with the feeding provided for game birds

Reed Bunting. Only rarely seen before 2003/04 when the artichokes matured and were up to 9 foot high. There must be weed seeds under the artichokes as this species was largely confined to this crop although they later fed out into the Triticale. One bird had been ringed in early Autumn at Kilconquhar reedbeds and in March - after most had departed - one was retrapped back near Kilconquhar. This crop is clearly very significant for this species

European Goldfinch. This species was present in quite large numbers. Very addicted to rape seed bait and clearly fed on this a lot. This species is a partial migrant and numbers vary between years but may well prefer to stay and feed locally, especially with lots of rape seed put down.

Brambling. These too fed in the artichokes but also in the game mixes. There were about 40 birds but they had gone by mid February. This species varies greatly between years and it may depend on the scale of arrivals on the adjacent coast in October when they migrate in for the winter.

European Greenfinch. My studies here have shown this species to be very mobile, feeding relatively briefly at a particular site before moving on a few kilometers. Scarce in the early winter but arrived late December co-inciding with a capture of one with a Norwegian ring. Most left by early March when 3 from Kippo turned up in Crail. Either these were dispersing back on to territories or were migrants moving back to the coast before crossing the North sea.
Common Linnet. Between 300 and 500 most years but difficult to catch here so far. Fed extensively the whole winter on the game mix.
Yellowhammer. This tends in early winter to range widely over stubble (even the apparently very clean stubbles that occur in this part of Fife) Once the Triticale was lodged down (and I guess that the seeds were damp, swollen and easily digested) they moved in and fed out of the Artichokes or fed down from the tops of adjacent pines *spp.* This species clearly uses the Artichokes as a hedge and with over 100 caught, this shows that a significant local population is using the crops. One caught in winter had been ringed as a breeding bird at Fife Ness (9kms away)
Corn Bunting. 30 appeared in early February and fed in the Triticaleat Kippo mixed in with Yellowhammers. None were caught and they largely fed into the Triticale out of the high trees. They dispersed in a mild spell and did not return during the cold windy period in March
Eurasian Tree Sparrow. Small numbers of these appeared around the farm and small numbers briefly in the Hillary game crops. Just one was caught. These too appear to need a hedge to feed from but definitely prefer thick Hawthorn. The population here has declined enormously and possibly currently there are very few in the East of Fife at all. Chris Smout (*pers comm*.) said he had seen flocks crossing the Forth in early Autumn and maybe the local birds are now moving out for the winter. Local crops however may eventually produce a wintering population.

Discussion.

The aim of this project is to discover which species make use of which crops and under what circumstances. A real hope was that Corn Buntings, Eurasian Tree Sparrows and Yellowhammers would be attracted in. As all three occurred this winter I see this as something of a triumph. Ringing and colour ringing is beginning to tell us something about movements with 18 controls this year (movements over 6 kms) and clearly the colour ringed Chaffinches have great potential and I have moved from a general request for people to look out for them to specifically asking people to help. As one person in St Andrews has seen 2 and another in Crail has seen 4 I have hopes of producing a network of active observers. I believe the RSPB are colour ringing Corn Buntings and this would be very valuable since the singing males are so easy to check for rings. I think the real breakthrough is realizing that a seed crop on its own has a much smaller value than a similar crop planted near a hedge (preferably a thick Hawthorn *Crataegus spp.* hedge that offers protection from raptors) and that Artichokes simulate such a hedge and have immense potential. We are due to plant Artichokes adjacent to the Triticale and game mix at Hillary where the current crops are in open fields and are currently much underused. This should be a critical experiment. In Wales (in my youth) tall, shrubby hedges were a

key feature of the big winter finch flocks. The hedges were layed in a 10 to 15 year cycle and so tall, thick hedges were the norm. In Fife, what few hedges there exist are almost invariably flailed into submission and are of far less use to birds. I suspect planting Hawthorn strips in the edges set aside permanently in the stewardships scheme would make more difference to the threatened finch populations than any other measures, especially now raptors are so common. The same lack of scrubby shrubs in the village of Kingsbarns means there are no safe refuges for birds feeding in winter and the population is in steep decline (though the evidence is circumstantial).

Conclusions

Recent studies of farmland birds in the UK have tended to rely on transects carried out at intervals. Daily observations in this study have shown feeding behavior to be complex with a great many variables, some of which are as yet by no means clear. An integrated ringing project on winter finches can provide a great deal of information on strategies that are valuable to passerine birds but are also acceptable to intensive agriculture. I believe there are two immediate needs to enhance such programs. Ideally, ringing sites should be a maximum of about 10 kms apart with a number of ringing groups co-operating. This should help provide information about how much ranging the different species need to carry out in winter. Are some species content to stay put if the feeding is good enough and the habitat is acceptable? Do others - from innate behavior - need to range more widely? (Chaffinches superficially seem to fit the former class and Yellowhammers the second, but what of Corn Buntings and Eurasian Tree Sparrows? - both apparently in trouble though, there has been abundant food here for a number of years). I accept that radio tracking will increasingly answer this problem but the cost may make co-ordinated ringing a viable alternative. Second - and critically - it is necessary to experiment with different crop types to find those that offer the maximum benefit while still being acceptable to intensive agriculture.