# BIRDS AND HUMANS IN HARMONY:
# A SUSTAINABLE MANAGEMENT SCHEME IN LONG VALLEY

## BIRD MONITORING PROGRAMME

| Programme 2005/06 | Summer | June - August 2006 |
|---|---|---|

## Summary Report – Summer 2006 (June to August)

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### Background

The Environment and Conservation Fund (ECF) supported a Hong Kong Bird Watching Society's project: Birds and Humans in Harmony – A Sustainable Management Scheme in Long Valley which aims to enhance conservation value of Long Valley, especially for birds through a public-private partnership (PPP) scheme between the Hong Kong Bird Watching Society and a local farming community. This project was approved by ECF in December 2005 and several aspects of this project have been started since then. This section of report presents data collected in summer 2006 at the bird monitoring programme at Long Valley of this project.

### Methodology

Bird survey was started since the commencement of this project in December 2005 and data is used to demonstrate effects of habitat enhancement exercises to the bird community in Long Valley area. Survey area is mainly confined by a drainage channel lying on west, north and east, and Yin Kong Village on the south. This bird monitoring work is conducted once per week by an accredited surveyor. The survey was conducted by following a standard transect in order to obtain comparable results and complete coverage of all farmlands in the shortest time. Total surveying time of one survey maintains at about 3.5 hours in the mornings of the scheduled dates. The surveys were scheduled in dates during summer 2006 as follows: 1, 8, 15, 22 June; 2, 9, 13, 20, 27 July; 5, 11, 17, 24, 30 August. All the fields in the survey area are also given a specific number. Bird species and numbers are recorded with the field number.

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One of the objectives of this project is to demonstrate an enhancement of conservation value of Long Valley through a sustainable management scheme from a public-private partnership. This is achieved by altering some micro-habitats in crop fields in Long Valley to attract wild birds increasing utilizations of these habitats. Some exercises has been started to implement in this study period. Effects of these exercises to the birds are addressed below.

**Results**

Regular bird monitoring

During the summer 2006, a total of 14 surveys were conducted. Trends of abundance and number of species of birds at Long Valley are referred to figure 1 and 2 respectively. Number of each count is shown in table 1. Numbers of birds recorded in Long Valley remained high in June and these high numbers were largely comprised by presence of large flocks of Scaly-breasted Munia *Lonchura punctulata* and one big flock was counted at 213 individuals on 1 June.

Then bird number decreased drastically in the course of July to fewer than 100 individuals. No other available data could be found for comparing this figure but no migratory birds occurring at Long Valley by this time and birds becoming less active and inconspicuous in the breeding season that cause few birds are present, or birds could not be easily found during the surveys.

Both bird abundance and species diversity increased from the last week of July and in the course of August. Autumn migratory birds arrived to Long Valley from this time. Juveniles of some resident birds also moved to Long Valley. These could increase the numbers of bird present in Long Valley.

Table 1. Numbers in each counts and monthly average figures (and SD) of birds counted at Long Valley, June to August 2006.

| | June 2006 | July 2006 | August 2006 |
|---|---|---|---|
| Number of birds counted | 363, 227, 298, 185 | 47, 59, 96, 68, 211 | 180, 174, 113, 199, 143 |
| Mean (SD) | 268 (79) | 96 (66) | 161 (34) |

Habitat enhancement

Several fields in Long Valley have been adopted modifying their farming practices to

increase their ecological value to the birds since winter 2005-06. The practices are aimed to create and maintain four basic types of habitats, namely fallow dry agricultural land, wet agricultural land, shallow water habitats and farmland margins and these were still continued during the summer 2006. Figure 1 and 2 also show the numbers of bird individual and bird species in these managed fields respectively. Below are some details about bird's utilization of these habitats or fields in regarding to the management practices. Data analysis shown below includes only counts in the summer months because the total abundance of birds in Long Valley have big differences in different seasons and analysis including different season data might only show this difference from seasons but not from the management practices of the agriculture fields.

Analysis for showing the effectiveness of the management practices is made by comparing the (mean) numbers of birds in managed agricultural fields and control fields. The control fields are selected base on two main criteria: in similar size and shape to the managed fields, and in a close range of the mange field, i.e. usually adjacent to the managed fields. Farming practices of the control fields are also considered in this analysis.

*Dry agricultural land*

Fields adopted this practice: Field 101, Field 110 (20,000 sq. ft)

Fields used as 'control' for comparing the effectiveness of the practice: Field 74, Field 102 - both are adjacent to field 101 and 110, in similar size (24,900 sq. ft) and undertaking dry agricultural farming practices but left fallow without any crops during the reporting period.

Farming practices include:

- Bunds were maintained and weeds were removed.
- Flowering Chinese Cabbage were planted in March.
- Flowers of the cabbage were come out in early April and seeds were produced in mid-April. All were uncut and used for attracting birds.
- All cabbage died out in May and the fields were cleared with 'fire gun' on 20 July.
- Flowering Chinese Cabbage was planted in late July and it could only grow slowly because of unfavourable weather condition (i.e. the cabbage grows better in cool and dry weather.)
- The crop started flowering in early August.
- All crops died out in late August.

Bird utilization:

This farming practice and so on the habitat created is aimed to attract some open country species such as pipits, buntings, starlings, shrikes and munias. Mean number of birds found in the managed fields has no significant difference to the mean number in the control field (Table 2), but it should be noted that the total size of control fields is bigger than the managed fields. It is not surprised that this farming practice could not attract more birds in the summer. In fact, many of these target species are migrants and they visit Long Valley in autumn and winter but absence in the summer.

Table 2. Numbers, mean and SD of birds recorded in dry agricultural (Field 101, 110) and control fields (Field 74, 102)

| | Managed field: Field 101 and Field 110 (20,000 sq. ft) | Control field: Field 74 and Field 102 (24,900 sq. ft) |
|---|---|---|
| Numbers in each count | 9, 2, 1, 1, 0, 0, 0, 0, 17, 0, 4, 2, 0, 0 | 3, 0, 0, 0, 0, 0, 1, 0, 0, 5, 18, 2, 0, 0 |
| Mean $\pm$ SD, N | 2.6 $\pm$ 4.8, N = 14 | 2.1 $\pm$ 4.8, N = 14 |
| Mean number per unit area (x $10^{-3}$ sq.ft) | 1.30 | 0.84 |
| Test | Mann-Whitney Rank Sum Test: T = 214.5, P = 0.612, n.s. | |

*Wet agricultural land*

Fields adopted this practice: Field 242 (15,000 sq. ft), Field 257 (8,500 sq. ft); Field 238, Field 280 and Field 281 were started to adopt this farming practice in August.

Fields used as 'control' for comparing the effectiveness of the practice: Field 241 – It is adjacent to field 242, in similar shape but bigger in size (16,000 sq. ft) and this field is managed as wet agriculture assumption farmland with Water Chestnut planted on the field. Field 245 – It has a bigger size (17,400 sq. ft) to field 257 and also is located in the northern part of the Long Valley, but field 245 and 257 are separated by field 258.It is undertaking wet agricultural farming practice with Water Spinach planted on the field throughout the reporting period.

Farming practices include:

- Weeds were removed in the fields.
- Bunds were created and maintained.

- Water was pumped into the fields and water level was maintained to about 2.5 cm depth.
- Water Chestnuts seed were planted in one part of field 257 in early June.
- Water Chestnuts were transplanted in field 242 in late June.
- Weeds in field 257 were removed in mid-July.
- Field 242 was changed to rice paddy and lime powder was put into the field on 28 July.
- The second round of paddy rice was planted in field 242 late August.

Bird utilization:

The wet agricultural lands are planned to attract some shorebird species such as Greater Painted Snipe *Rostratula benghalensis*, *Gallinago* snipes and Wood Sandpiper *Tringa glareola*. It is success in field 242 in which the mean number of birds recorded in managed field is significantly higher than the mean number in the control field (Table 3). Wood Sandpipers were recorded in this field regularly since they came back to Long Valley in early August and the Greater Painted Snipes were recorded in three counts in this field. Besides, Little Egrets *Egretta garzetta* and Chinese Pond Herons *Ardeola bacchus* were also recorded regularly in this field.

Table 3. Numbers, mean and SD of birds recorded in wet agricultural (field 242) and control fields (field 241)

| | Managed field: Field 242 (15,000 sq. ft) | Control field: Field 241 (16,000 sq. ft) |
|---|---|---|
| Numbers in each count | 9, 0, 4, 1, 1, 2, 1, 1, 1, 11, 0, 10, 12, 6 | 3, 2, 2, 2, 0, 0, 0, 0, 0, 0, 0, 0, 0, |
| Mean $\pm$ SD, N | 4.2 $\pm$ 4.5, N = 14 | 0.6 $\pm$ 1.1, N = 14 |
| Mean number per unit area (x $10^{-3}$ sq.ft) | 2.80 | 0.38 |
| Test | Mann-Whitney Rank Sum Test: T = 260.5, P = 0.009 | |

In contrast to field 242, the effectiveness of farming practice in field 257 was less clear, which has no significant difference in the mean number to the control field (Table 4). Although one Greater Painted Snipe was recorded once in field 257, the total numbers of bird recorded in this field were still relatively low. Farming practice in field 257 is not as same as in the field 242. Only approximately one-third of the field 257 is followed the wet agricultural land farming practice and this managed area was planted with Water Chestnut. Another one-third of the field was still cultivated with Water Spinach and the remaining part was empty. Perhaps the size for undertaking

the farming practice in this field is too small and fragmented, that may not be able to attract more birds.

Table 4. Numbers, mean and SD of birds recorded in wet agricultural (field 257) and control fields (field 245)

| | Managed field: Field 257 (8,500 sq. ft) | Control field: Field 245 (17,400 sq. ft) |
|---|---|---|
| Numbers in each count | 3, 1, 0, 1, 0, 0, 0, 2, 0, 0, 0, 0, 0, 0 | 2, 0, 0, 0, 0, 0, 1, 0, 0, 0, 3, 0, 0, 0 |
| Mean $\pm$ SD, N | 0.5 $\pm$ 0.9, N = 14 | 0.4 $\pm$ 0.9, N = 14 |
| Mean number per unit area (x $10^{-3}$ sq.ft) | 0.59 | 0.23 |
| Test | Mann-Whitney Rank Sum Test: T = 209.0, P = 0.799, n.s. | |

Field 238 was abandoned and overgrown since the commencement of this project. Weed in this field was cleared on 9 August and a total of 23 small fields were made after that. No suitable comparison of data could be made due to its large size and difference of management practice (i.e. long abandonment). Surveys in August after clearance indicated that the new open fields could attract some waterbirds, such as up to 11 Cattle Egrets *Bubulcus ibis* and several species of shorebirds including *Gallinago* snipes, Wood and Common Sandpipers *Actitis hypoleucos*. More analysis will be made after completing more surveys in the autumn.

Field 280 and 281 have also been changed to wet agricultural fields from 9 August and it is planned to provide suitable habitats for birds during autumn migration. No bird was counted in these fields during the summer. Effectiveness of the farming practice to attract birds will be assessed later on when more data are collected in the following months.

*Shallow water habitat*

Fields adopted this practice: Field 176 and 177 (25,000 sq. ft); Field 224, 225 and 226 (30,000 sq. ft)

Fields used as 'control' for comparing the effectiveness of the practice: Field 173, 174 – control of field 176, 177; these control fields were used to culture Water Spinach in this summer and so some shallow water habitat could also be provided and the total size is 26,600 sq. ft. Field 227, 229, 232 – control of field 224, 225 and 226; although these fields were also used to cultivate Water Spinach in this summer and

part of these fields could have some shallow water habitats, these fields were not under active management. Water Spinach on field 227 was cleared in early August. The total size is 35,700 sq. ft.

Habitat management practices include:

- Open space was created for birds by removing portion of weed and water spinach in fields.
- Bunds of the fields were created and maintained.
- Water level was maintained between 1 to 5 cm depth over the summer.
- Some Water Spinach grew in these fields over the summer but it was regularly removed to provide open area.

Bird utilization:

This farming practice is aimed to create and provide a suitable habitat for the Greater Painted Snipe, *Gallinago* snipes, Black-winged Stilt *Himantopus himantopus*, bitterns, egrets and also wetland-associated landbirds including Bluethroat *Luscinia svecica*, Kingfishers and Zitting Cisticola *Cisticola juncidis*. In field 176 and 177, the mean number of bird recorded in these fields is not significantly different to the mean number in the control fields in this summer (Table 5), although the mean number is shown higher in the managed fields. These target species are mostly migrants and hence more data in the coming autumn and winter might be able to show the results in significant difference.

Table 5. Numbers, mean and SD of birds recorded in shallow water habitats (Field 176, 177) and control fields (173, 174)

| | Managed field: Field 176, 177 (25,000 sq. ft) | Control field: Field 173, 174 (26,600 sq. ft) |
|---|---|---|
| Numbers in each count | 1, 1, 1, 0, 0, 0, 8, 3, 2, 8, 0, 1, 0, 0 | 0, 1, 0, 0, 0, 2, 0, 0, 0, 0, 0, 0, 0, 1 |
| Mean $\pm$ SD, N | 1.8 $\pm$ 2.8, N = 14 | 0.3 $\pm$ 0.3, N = 14 |
| Mean number per unit area (x $10^{-3}$ sq.ft) | 0.72 | 0.11 |
| Test | Mann-Whitney Rank Sum Test: T = 241.5, P = 0.080, n.s. | |

In field 224, 225 and 226, the results in spring have shown that this farming practice could significantly increase the bird utilization in these fields. This still showed the same increase in the summer and many birds, especially waterbirds, are found in this

shallow water habitat (Table 6).

Table 6. Numbers, mean and SD of birds recorded in shallow water habitats (Field 224, 225, 226) and control fields (Field 227, 229, 232)

| | Managed field: Field 224, 225, 226 (30,000 sq. ft) | Managed field: Field 227, 229, 232 (35,700 sq. ft) |
|---|---|---|
| Numbers in each count | 1, 3, 3, 7, 3, 0, 0, 7, 18, 0, 1, 1, 39, 0 | 2, 0, 0, 0, 1, 3, 0, 0, 0, 0, 1, 0, 1, 0 |
| Mean $\pm$ SD, N | 6.0 $\pm$ 10.7, N = 14 | 0.6 $\pm$ 0.9, N = 14 |
| Mean number per unit area (x $10^{-3}$ sq.ft) | 2.00 | 0.17 |
| Test | Mann-Whitney Rank Sum Test: T = 251.0, P = 0.029 | |

*Farmland margin*

Farmland practices include:

- Weeds are removed.
- Target plant species, e.g. Tomato, were planted to attract birds from their flowers and seeds.
- However, many these plant species died during the summer due to large rainfall.

As the habitat could not be provided in this summer, no data analysis is made to show the effectiveness of the farming practice at this moment. Further works to provide this habitat to the birds are planned in the coming autumn and this part will be assessed in the forthcoming reports.

Other notable observations

Greater Painted Snipe *Rostratula benghalensis*

This target species was recorded regularly at Long Valley in summer 2006 and the highest count was five individuals on 1 June. Breeding of this species at Long Valley is confirmed by finding chicks in May, birds recorded in pair and a nest found in July.

Oriental Pratincole *Glareola maldivarum*

A flock of 11 birds was recorded on 27 July. This is an unusual high number for this species in the mid-summer.

Savannah Nightjar *Caprimulgus affinis*

One individual was found on 27 July. This species is usually recorded at Long Valley in the evening, so the present bird count would not easily record this species.

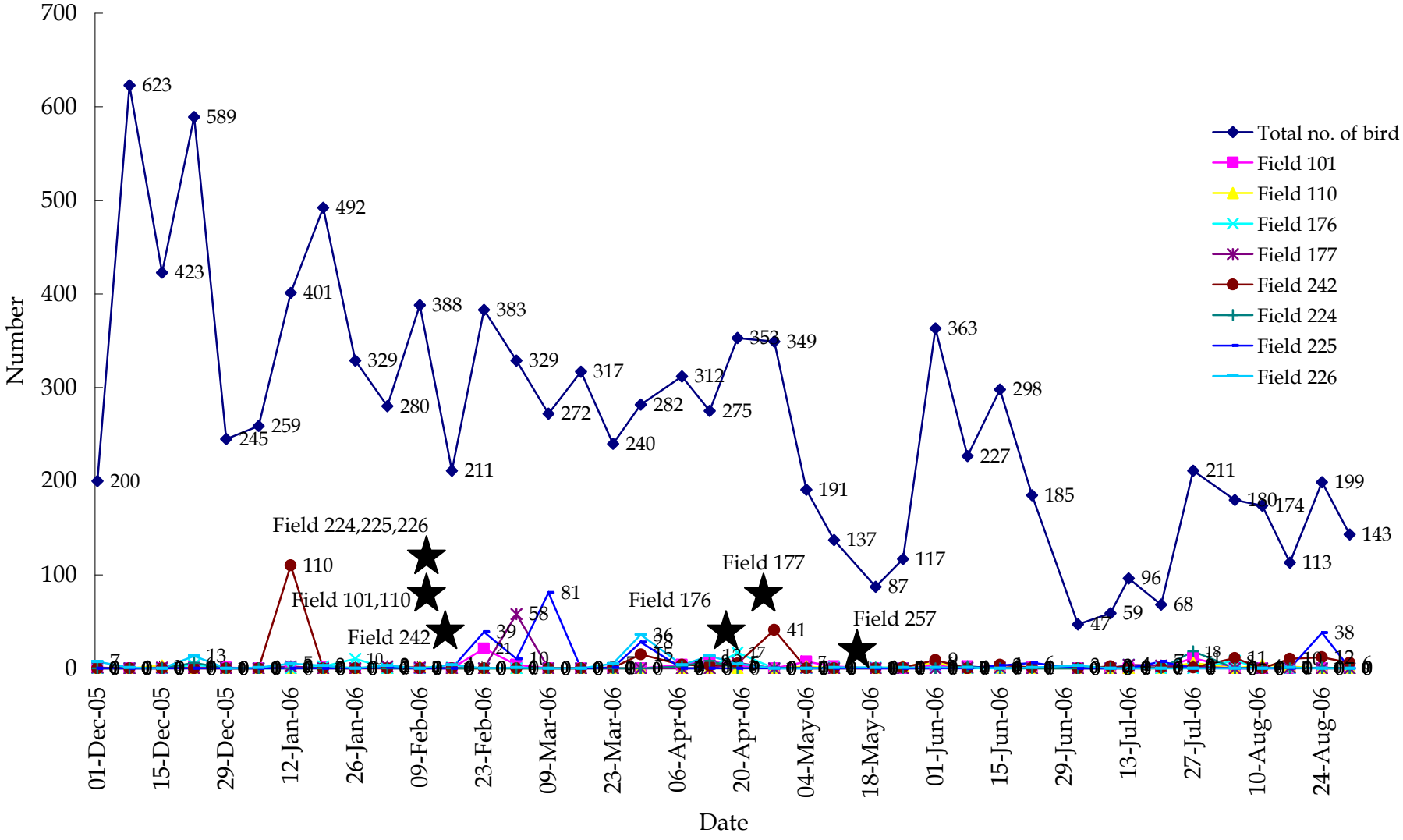


Figure 1. Numbers of bird in the whole Long Valley area and some managed fields. Note that asterisks indicate the time of farmland management practices which were started to implement.

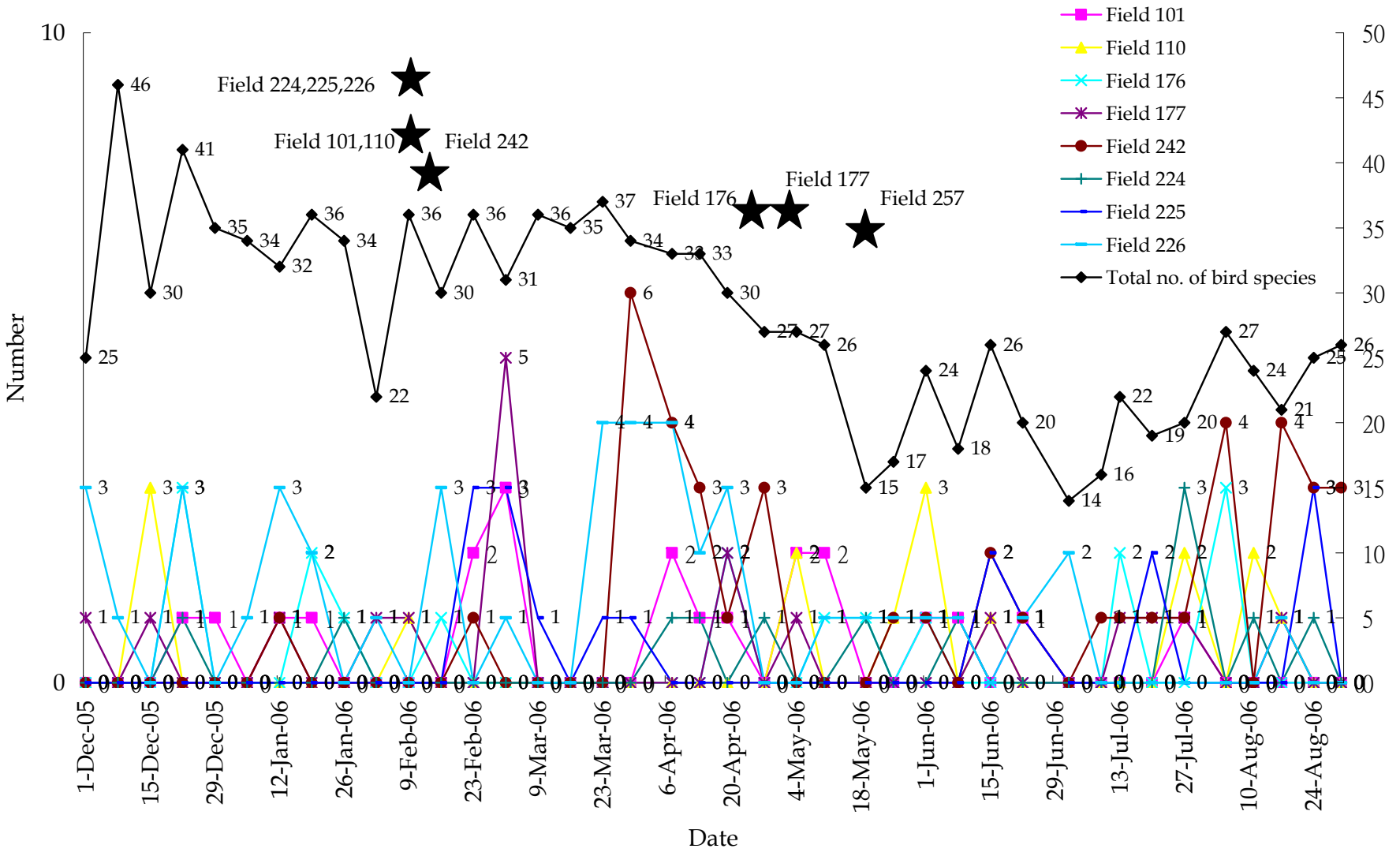


Figure 2. Numbers of bird species in the whole Long Valley area and some managed fields. Note that asterisks indicate the time of farmland management practices which were started to implement.