The House Crow in Hong Kong: the beginning of an ecological catastrophe?

House Crow ecology

- Habitats: cities, villages, farmland, often coastal and ports
- Largely commensal with man
- Omnivore and scavenger
- Highly social, feeds and roosts in flocks
- Use large trees to roost (communal) and nest (solitary), regularly adopts man-made structures such as cranes and lights as a substitute
- Average no. of young per nest 2.8 and up to four nesting attempts per year (Singapore)

House Crow Distribution

- Native to the Indian subcontinent where abundant
- Well established introduced populations around the Indian ocean
- Native population in China restricted to west Yunnan

Well established introduced populations

	Ship-assisted (A) / Deliberate (D)	Spread (S)
•	Malaysia/Singapore	D & S
•	Yemen	D & S
•	Persian Gulf	A
•	Kenya	S
•	Zanzibar & Tanzania	D & S
•	South Africa	A
•	Egypt & Red Sea	A
•	Jordan/Israel	A
•	Mauritius	D

New populations & isolated records

- Netherlands (1994), 12 birds in 2002, breeding
- Spain
- Ireland
- Denmark
- Barbados
- Chile
- USA (east and west coasts)
- Japan (released bird)

- Hong Kong

The House Crow in Singapore

- 1987: 1800 – 3700
- 2001: 20,000 + (now known to be underestimate)
- 2004: 130,000

- Programme to control numbers since 2002 by shooting, nest destruction and restricting food supply.

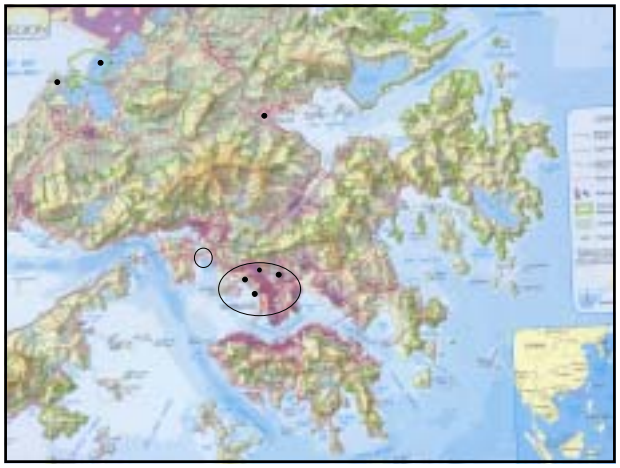
- Estimated that control by shooting alone requires 41,000 to be killed each year (or 32,000 if combined with other measures)

Origin of the Hong Kong population

- Rumour of birds being released by film-makers in the 1970s or 1980s – any evidence?
- Pattern of records, with most close to the container port, suggests most birds arrived by ship
- Birds in Hong Kong are of the dark race *Corvus splendens insolens* (native to Burma). This is the race in Malaysia and Singapore, it is most likely that the Hong Kong birds came from there

The House Crow in Hong Kong

- First record of **1** bird in Kowloon Tong in 1974
- Second record in 1980
- Ten more records of up to **2** birds during 1986 – 1997
- Up to **20** regularly in West Kowloon in 2000
- Current AFCD survey suggests more than **200** birds



Main House Crow habitat in Hong Kong

- City parks with large trees
- Proximity to:
  - people
  - container port
  - wholesale market

Potential future habitats in Hong Kong

- Throughout the urban area especially in parks and close to markets
- New Towns
- Villages and farmland
- Deep Bay fishponds
- Airport – unlikely?

Why are House Crows a problem: direct effects on wildlife

Direct predation on eggs and nestlings, particular concerns in respect to:

- Urban songbird populations
- Colonial nesting birds especially terns and egrets
- Species already endangered for other reasons (e.g. small island endemics)
- “Naïve” species

Indirect effects on wildlife

From the House crows themselves:

- Exclusion of other species from the urban scavenger niche (e.g. reduction in myna populations in Singapore)
- *Effects of control measures*
- Disturbance or death of other species (e.g. effects of noise, poisoning)
- Loss of habitat (e.g. loss of large trees)

Effects on humans

- Direct attacks
- Disturbance (noise)
- Faeces
- Disease
- Unpopularity of urban birds, bird feeding

If left alone, will House Crows become a common in Hong Kong?

Almost certainly:

- House Crows thrive in urbanised environments in their native range and are abundant in their introduced range in Singapore, Kuala Lumpur, Penang, Durban, Mombasa, Persian Gulf etc.
- No climatic limitation in Hong Kong: successful in tropical dry climates (Middle East), wet climates (South-east Asia) and monsoonal climates (India, East Africa).

If left alone, will House Crows become a pest in Hong Kong?

Almost certainly: the House Crow is considered to be a pest species causing ecological damage and nuisance to humans in almost all the countries where it has occurred outside its native range.

Direct adverse effects in Hong Kong are likely to include:

- Reductions in urban songbird populations
- Reduced breeding success (through nest losses) on colonial nesting species, notably ardeids
- Nuisance to humans

There may also be indirect adverse effects if (e.g.) urban landscaping has to be modified to minimise human / House Crow interactions

Can we control the House Crow population in Hong Kong?

Why we might fail?

- **Too late** – the Hong Kong population is already 10 times larger than any House Crow population that has been successfully *permanently* controlled
- **Too slow** – the population is increasing rapidly, even a delay of two or three years could result in a population of 1000+ birds
- **Too difficult** – experience elsewhere has shown that permanently controlling populations is time-consuming, labour-intensive and expensive and requires a permanent effort either to keep populations at a low level or prevent re-establishment

Control of populations (I): FAILURES

- Zanzibar – population reduced by 80% during 1990 – 1995 then money ran out and numbers rapidly increased
- Durban, South Africa – reduced from 1000 to 150 from 1989 – 1991 then money ran out; back to 500 in 1993
- Aden (Yemen) – 250,000 killed by poisoned bait but recolonised from other areas

Failures due to lack of resources to “finish the job” or immigration

Control of population (II): PARTIAL SUCCESS (?)

- **Tanzania** – control began in Dar-es-Salaam in 1997- long term objectives?
- **Kenya** – various methods since 1984: poisoning, nest destruction, reducing food availability, shooting – measures successful (at least in short term?) – long term objectives?
- **Djibouti** – intensive programme in late 1990s "substantially reduced population"
- **Socotra** – current programme – aims at eradication
- **Singapore** – permanent programme; nest destruction, reducing food availability and shooting – aims at reduction, elimination not feasible

Control of House Crow populations (I): SUCCESSES

- Australia – over 50 arrivals – "shoot on sight" policy has prevented establishment
- Seychelles – first in 1977, 25 in 1986, successfully eradicated – shoot on sight policy maintained

The two wholly successful programmes involved killing the birds when numbers were still very small and maintaining vigilance to prevent recolonisation

Can we control the House Crow population in Hong Kong?

Why we could succeed?

- The House Crow population is still relatively small and localised.
- Hong Kong is rich enough to be able to afford the investment in control measures
- We can benefit from experience elsewhere, e.g. from Singapore

What would be the most appropriate and effective control measures for use in Hong Kong?

Shooting

Advantages

- Quick and effective
- Relatively cheap

Disadvantages

- House Crows rapidly learn to avoid shooters
- Requires trained marksmen
- Shooting may be practically difficult and socially unacceptable in urban areas

Nest destruction

Advantages

- Does not require special skills
- Effective so long as a sufficiently high proportion of nests are found

Disadvantages

- Finding a high proportion of nests is labour-intensive
- Slow – must be continued for several years to have an impact on populations
- May disperse birds to new areas

Poisoning House Crows eggs (paraffin dipping) to prevent successful breeding

- Does not require special skills so long as nests are accessible to "firemen's" ladders
- Effective so long as a sufficiently high proportion of nests are found
- Finding a high proportion of nests is labour-intensive
- Slow – must be continued for several years to have an impact on populations
- Access to nests may be difficult

Poisoning

Advantages

- Effective (so long as birds take poisoned baits); methylhydrochloride (a slow poison which kills in 1 - 3 days has been effective elsewhere

Disadvantages

- Risk that other species may take baits (reduced if chicken eggs used as poisoned bait)
- Crows learn to avoid quick-acting poisons
- Secondary poisoning of other species eating dead crows

Live Trapping ("Crow Traps")

Advantages

- Highly selective (non-target species may be released)
- Easy to manage as a long-term control technique

Disadvantages

- Only worthwhile if crow numbers are sufficiently high
- Birds may avoid traps (though works on other crow species)
- Traps require (semi-) permanent sites and regular supervision

Reducing food availability

Advantages

- Requires no specialised skills
- Reduces food availability to other pest species

Disadvantages

- Slow in effect and only worthwhile in urban environments where natural food supplies limited
- Reduces food availability to non-pest species

Reducing roost & nest site availability (felling / pruning / not planting large trees

Advantages

- Can be rapidly effective in reducing nuisance to humans

Disadvantages

- Loss of shade and landscape benefits of trees to humans
- No population effect - will disperse birds to other areas
- Loss of wildlife habitat

Control measures already used in Hong Kong

Action by AFCD in 2004 - initially in response to complaints from residents in Sham Shui Po

- Playing distress calls and tree pruning (just shifted the problem?)
- 14 young taken from nests in Kowloon Tsai and Sham Shui Po Parks

Vegetation management – not appropriate in Hong Kong?

Groups of large trees have an important human benefit and ecological role in Hong Kong's dense urban areas. The group of trees on the right contained roosting House Crows but beneath them the cool shade was utilised by several elderly residents on a hot July day.

In any case House Crows readily use man-made structures – not just for roosting but also for nesting.

The way forward: short term fact finding and research

What we shouldn't be doing

- Debate whether House Crow control is necessary or desirable

What we should be doing

- Agree that control (and ultimately elimination) of the House Crow in Hong Kong is a priority for urgent action
- Learn from control measures in Singapore and elsewhere and investigate applicability to Hong Kong
- Continue to monitor population size and distribution

The way forward: short term to medium-term action

What we shouldn't be doing

- Delay easily-implemented control measures until further data is available
- "Move the problem elsewhere" by bird scaring or pruning trees except in exceptional circumstances

What we should be doing

- Continue nest destruction programme instituted this year by AFCD
- Based on studies of success of control measures elsewhere carry out trials of measures to control numbers of adult birds: shooting and/or trapping and/or poisoning

The way forward: medium to long term measures

What we shouldn't do

- Rely on passive measures and nest destruction
- Slacken off control measures once population has been reduced

What we should do

- Continue active control measures for adult birds and nest destruction until breeding population is eliminated
- Maintain vigilance and destroy any newly-arriving birds