

## USING TRAPS TO CONTROL PIGEON POPULATIONS IN AIRFIELDS

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### ABSTRACT

The **Columba Livia** is a species of pigeon that has adapted to a wide range of habitats and has a high level of resistance to varying climatic and living conditions. In most places in the world, this bird is non-migratory through most of the year, and because of its high rate of reproduction (Goodwin, Derek 67), this species has become a damaging nuisance. Throughout the world, efforts are being undertaken to control and prevent the damage caused by this common bird.

In airfields, this bird presents a serious safety problem, both to the structures and to the airspace above them. Much damage is caused to equipment by the high acidity of the birds' secretions.

"Forest Ecological Solutions Ltd" developed and implements mechanical traps to capture these birds on a massive scale in populated areas. The method uses no toxic materials and leaves no environmental residue.

The method is environmentally-friendly and has been successfully applied, in an ongoing project, at four Israel Air Force bases for two consecutive years.

(Keywords: traps, trapping)

## 1. BACKGROUND

Man's intervention with his environment frequently leads to the extinction of certain species of animals in populated areas. At the same time, because of a lack of natural enemies, other species multiply rapidly, and frequently with the inadvertent help of humans in the form of the household waste products they produce and the potential nesting and incubation spaces their environment provides.

These species have spent many generations in the environment of humans. In small numbers, they do not cause damage and, in fact, provide an aesthetic element to the view on the horizon. In great numbers, however, they can turn into a serious nuisance.

The *Columba Livia* pigeon, a member of this group, is a bird that adapts itself to a wide range of circumstances and is exceptional for its ability to survive in varying climatic and living conditions (Cramt, 1977). Within six weeks of mating, a pair of pigeons can produce a pair of chicks who have excellent chances for surviving. This leads, in turn, to a very high rate of reproduction.

Large populations of pigeons, located in a specific area, pose a serious nuisance to persons and cause great damage to structures and equipment. The nuisance is expressed through their noise and the dirt they deposit in homes and other structures in the region.

In airfields, in addition to damage to equipment, there is also the danger of safety problems that endanger human life.

There are several methods to control the nuisance posed by these pigeons, and they can be categorized into two main spheres: Removal of the pigeons from a structure and controlling the pigeon population.

Some methods for removing the pigeons include the use of springs, glues, ultrasonic machines and sealing off of structures. These methods deal with the problem at specific locations.

Methods used to control the population include hunting, poisoning and trapping.

It is important to note that when pigeons are hunted or poisoned, the entire area is affected by the toxic substances used. Use of poison on the birds can lead to subsequent poisoning of other living things.

Our aim was the development of an efficient method to limit the nuisance posed by the pigeons without causing environmental damage or using toxic substances.

## 2. THE METHOD

The method developed by "Forest Ecological Solutions Ltd." is based on patterns of pigeon behavior over time and in a wide geographical range. Study of these patterns led to development of a method that utilizes knowledge of differences in behavior patterns caused by seasonal changes (nutrition, nesting) and which are affected by amounts of food and weather conditions at different times of year.

FIGURE 2. Tra

A broad range of acquired knowledge of the socialization between flocks, within flocks and between individual birds was used in developing these traps. The system is environmentally-friendly, since it uses no toxic substances and thus prevents the introduction of such poisons into the food chains of other animals. It also prevents the phenomenon of carcasses infesting the treated area, which remains clean and clear.

The method is based on a system of mechanical traps which developed by Mr. Zvi Horesh, with patent currently pending in Israel (#105892, 2 June 1993, System for Bird Trapping). The underlying principle addressed by the developer was the need to control the problem on an environmental rather than a local level.

Pigeons are attracted to the traps from a radius of 100 or more meters (authors' note - determined by marking bands pigeons' legs). The trapped birds are kept in humane conditions (water, food and shade provided) and every several days, they are removed from the traps while still alive. The traps are set up in such a way so as not to disturb normal activities at the site of treatment. Because of the special nature of the work with animals, which requires a response to their specific needs and behaviors, which requires the ongoing and careful control of the traps is necessary. Incorrect handling of the traps will affect their efficiency and will prevent successful treatment of the site.

Accumulated experience has taught us that in order to achieve maximal results, intensive effort must be invested in the initial phase, with extensive follow-up to assure an ongoing low level of infestation.

The work is done at different hours and with staggered frequency of visits, using different types of bait to suit different conditions in different areas.

### 3. RESULTS

The effectiveness of the method can be seen in this presentation of characteristics collected at the four Israeli airbases where trapping was done beginning in January 1993 and continuing to this date. The sites are located in two geographical regions: desert and coast. It is important to note that each of these sites is in an agricultural area which have large populations of pigeons in the area.

From the graphs presented as FIGURES 1 through 4, the following can be seen:

1. The number of pigeons trapped during the intensive initial phase, from January 1993 until January 1994, was greater than the number observed before the project began.
2. The ongoing rate of trapping in the extended follow-up phases is proportionate to the the rate of influx of new flocks into the area.
3. In the winter months and at the beginning of spring, there is increased trapping activity, in contrast with a lower rate of trapping seen during summer and autumn.

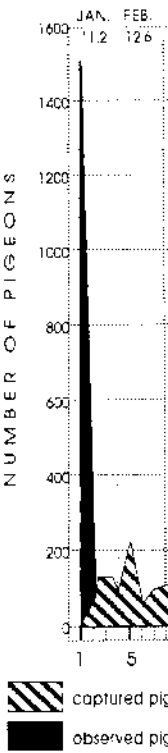


FIGURE 2. Trapping activity

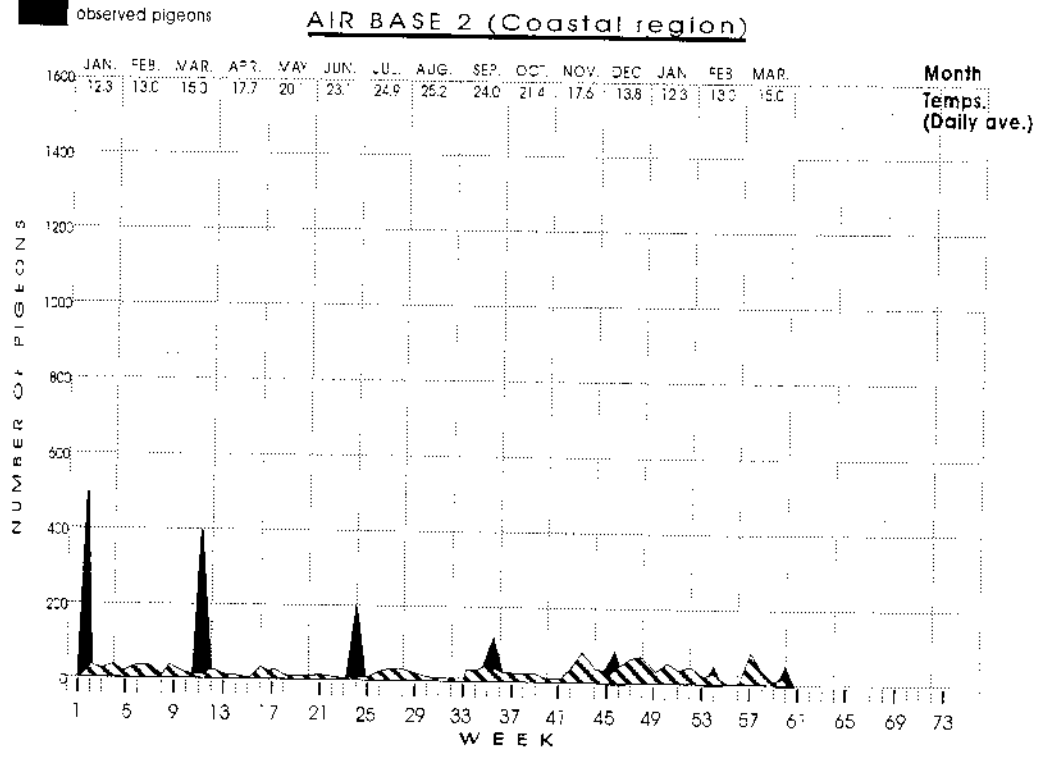
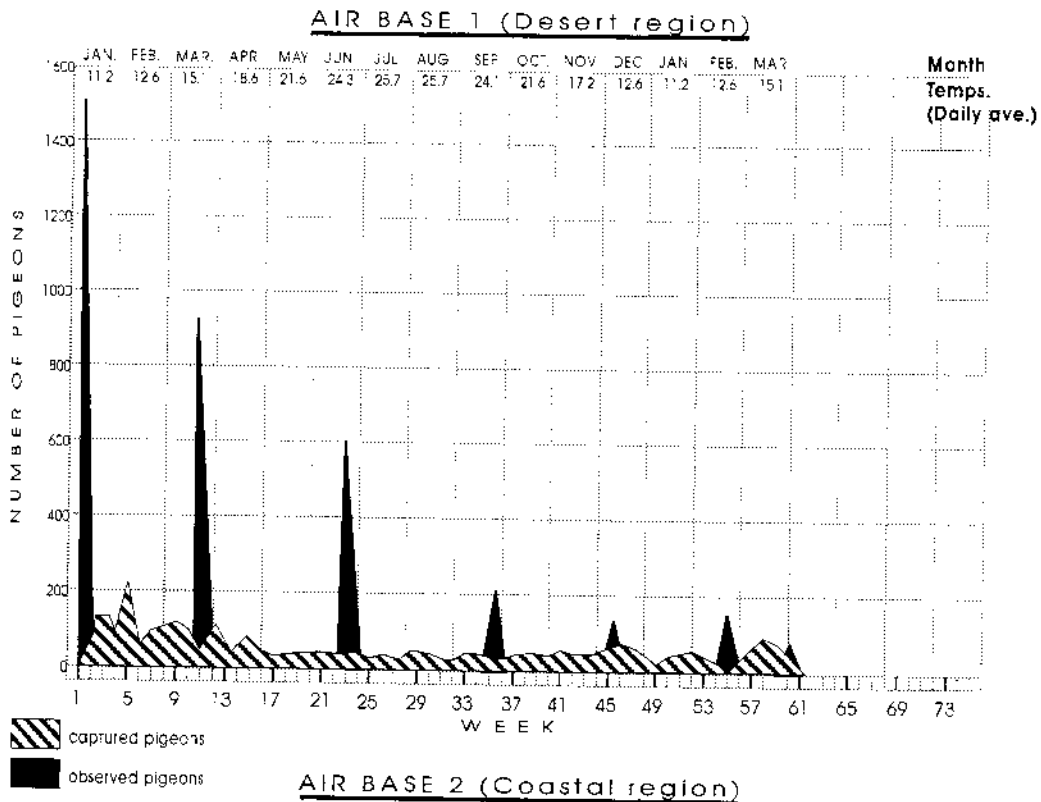
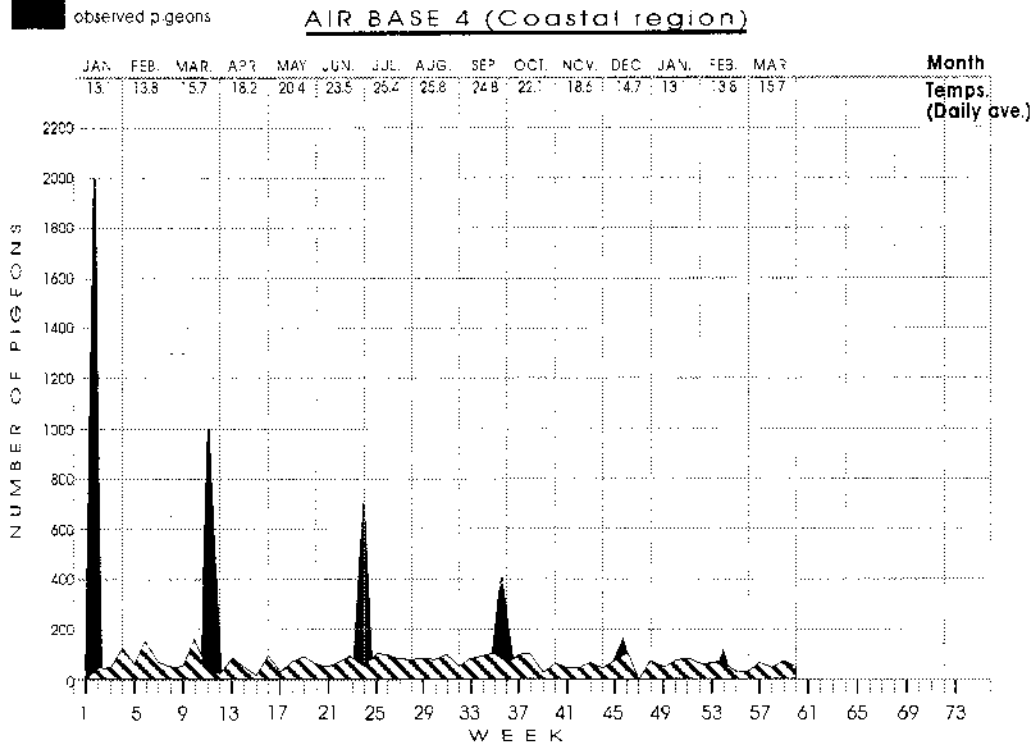
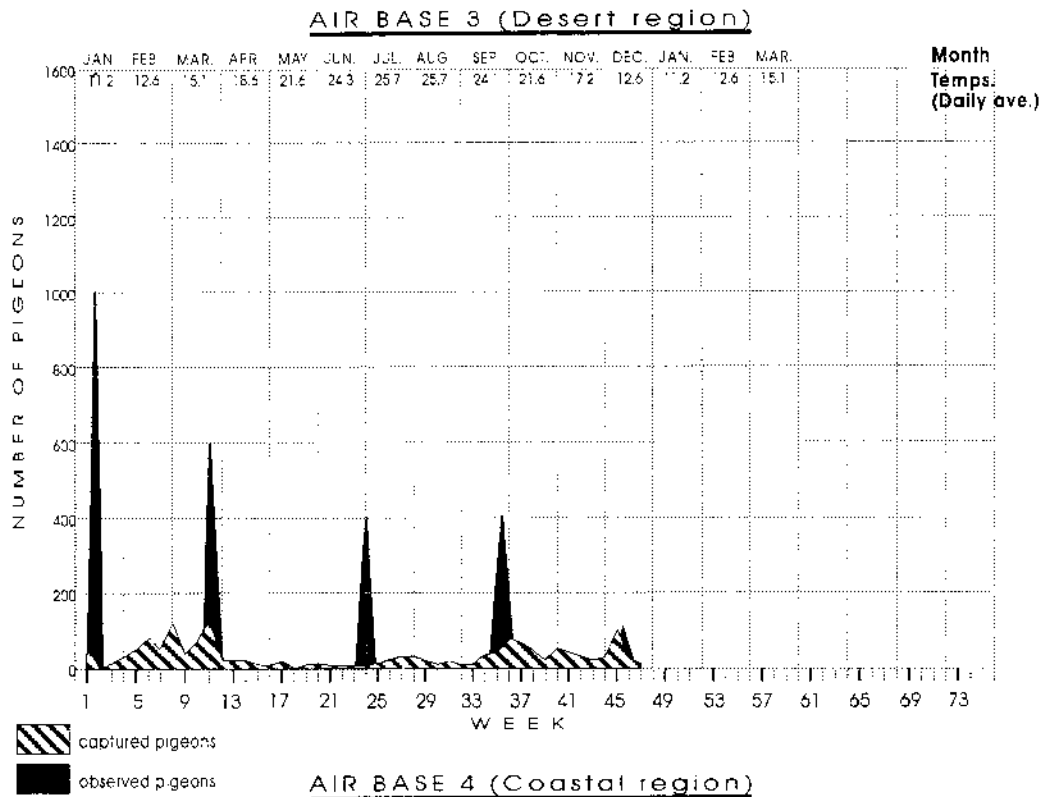


FIGURE 1. Trapping activity



4. The initial trapping activity of pigeons following...

Airbase
Airbase
Airbase
Airbase

4. SUMMARY

The following...

1. There is a significant increase in the number of pigeons undergoing...
2. The large increase in the number of pigeons is a result of the high capture rate that has been maintained throughout the year.
3. With this increase in the number of pigeons, the effectiveness of the treatment...

4. Seasonal variations in the availability of pigeons are more pronounced in warmer seasons...

Pigeons have been present in the area for a large number of years, and a large population...

From observations, it is evident that the treatment is a paradoxical effect caused by the urge caused by sexual maturity (legs).

The treatment requirements are high and airbase...

4. The initial observations, final observations, and accumulated number of pigeons trapped throughout period of treatment are summarized in the following table:

	Initial Number Observed	Final Number Observed	Accumulated Number Trapped
Airbase 1	1,500	100	2,456
Airbase 2	500	50	1,326
Airbase 3	1,000	100	1,642
Airbase 4	2,000	100	4,003

#### 4. SUMMARY

The following observations can be determined from these characteristics:

1. There is a consistent influx of new pigeon populations into the areas undergoing treatment.
2. The large number of birds trapped can be explained by a natural high growth rate that is seen in the high rate of trapping of young birds throughout the year.
3. With this method, ongoing activity is required in order to reach maximal effectiveness.
4. Seasons of the year have a direct effect on behavior patterns of the different pigeon populations. When temperatures drop and there is no readily available supply of food, the rate of trapping increases, in contrast to the warmer seasons, when there is a larger supply of food sources in the area.

Pigeons have a strong territorial instinct (Cramt, 1977). After removal of a large population of pigeons from an area where they have lived for many years, a vacuum is created that invites other flocks, new or local, to populate the newly-emptied niche.

From observations we conducted, we found that the fact that the areas under treatment are continually re-populated by new influxes of pigeons begins, paradoxically, with the parents' rejection of offspring almost at birth, caused by adult pigeons' strong territorial instinct. This same territorial urge causes the chicks to return to their natural habitats after reaching sexual maturation (authors' note - determined from marking bands on pigeon's legs).

The treatment method provides an effective response to a wide range of requirements, making it advantageous for use in airfields where structures and airspaces must be kept clean and clear.

5. REFERENCES

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