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THE ATTEMPT TO GET RID OF THE WOOD-PIGEONS (COLUMBA PALUMBUS) FROM ORLY AIRPORT

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PRACTICAL APPLICATION & CONCLUSIONS

Since it is quite difficult to affect the distribution of clover, we preferred to affect its abundance (CBDW) by spreading a hormone which essentially kills the Dicotyledones. This was the U46 KV liquid, containing 350 grammes/litre of 2.4 DP, 150 g/l of Mecoprop and 100 g/l of 2.4 MCPA. This herbicide was spread in April 1976 over two sections of land next to the Orly paved area, four litres per hectare and 800 litres per hectare of water.

Unfortunately, since this action is still very recent, no valid statistical results have been established. Nevertheless, it seems, at first view, that this method is effective since no pigeon has been seen on the sections which were treated, and the clover was just below 100% destroyed.

In spite of the lack of tangible results, this study seemed to be a good exampl of applied ecology. As a great number of authors have repeated, the search for what attracts birds to airports and the consequent modification of the ecology of the airport seems to be the most logical, effective and long-lasting approach.

The Attempt to Get Rid of the Wood-pigeons (Columba palumbus) from Orly airport

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INTRODUCTION

The presence of a great number of wood-pigeons at Orly Airport constitutes a primitive hazard for strikes with aircraft and, especially, from April to September. In fact, 32% of the bird strikes recorded between 1965 and 1975 are due to this species (1), the others involving crows (16%), starlings (14%), gulls (12%). These strikes linked to the presence of pigeons have caused six cases of total destruction of jet engines (of which four were B 747's) and nine modifications of flight plan.

Moreover, it has been extremely difficult, perhaps impossible, to use conventional methods of keeping birds away, such as pyrotechnic methods or frightening them with sound, given the surface to be covered and the fact that pigeons do not have distress calls. These two facts caused us to undertake a thorough study of the causes motivating the presence of wood-pigeons on the platform so as to make it less attractive for this species.

I - General Description of the Problem

The following facts resulted from the two series of studies performed in 1972 and in 1974:

I. 1. Origin of these birds and the numbers concerned

These birds are part of the population of breeding wood-pigeons of Paris itself, a population of about 2,000 couples. The total

(1) Total of bird strikes from 1965-1975, 115. 15 strikes due to pigeons; 50 determined.

number of birds frequenting the platform fluctuates between 500 and 1000 individuals, according to the season (maximum in June).

I. 2. Characteristics of their movements

The birds make daily trips between Paris and the airport. They leave the capital, starting at 8:00 a. m., in successive waves, according to a precise itinerary between Paris and Orly, in 30 minutes flying time. In June, a precise check has shown that 50% of the birds had arrived at Orly by 10 :20 a. m. and 50% had left by 7:10 p. m.

The size of the flights varies between two and 130 individuals; the flights are twice as large in the evening as in the morning; 80% of the flights are made up of about 30 individuals.

The altitude of the flights is between 5 and 200 meters, tending toward an average of 50 meters.

The reason for the movements appeared, essentially, to relate to feeding, since the movements were between the breeding area in the city and the feeding areas in the countryside. Visual observations and analyses of stomach contents have shown that the pigeons:

- Congregate at large lawns most of the time.
- Feed mainly on clover and, more precisely, on Trifolium campestre and T. repens.
- Pass three hours in actively feeding, five hours at rest (digestion) and 30 minutes in short flights; since the birds are present eight hours and 30 minutes on the platform, there is a potential, substantial danger for aerial navigation.

II - Detailed Study of the Trophic Relationship: Clover wood-pigeon

Once we had defined the numbers, the habits, and the food source of our bird population, we next studied, in more detail, the vegetation of the platform and its consumption by the wood-pigeon.

II. 1. Food possibilities on the Orly platform

Three species of clover have been found: T. pratense, T. repens, T. campestre.

. Their distribution and their relative abundance have been studied during three sampling sessions distributed over 17 known surface zones by the calculation of the percentages of surface covered by each species of clover (method derived from that of Braun-Blanket, using the abundance-dominance indices).

. The relationship of coverage percentage, consumable biomass of clover was next established in the laboratory for each species (cutting and weighing of the parts above ground [flowers, leaves, stems] on 100% coverage sampling).

. These samplings resulted in the calculation for each sampled zone of the consumable biomass in dry weight (CBDW) by species of clover as well as their distribution modes (diffusion, random or regular) (1).

II. 2. Consumption of the lawns by the wood-pigeon and the relationship of consumable biomass by dry weight (CBDW) - number of birds (N).

The average number of birds having frequented the 17 zones whose quantity and distribution of feed was known, was calculated in parallel. It appeared that the number of individuals frequenting a given zone depends on the total quantity of available feed (CBDW for the two clovers) when the feed is

(1) Characterized by the calculation of $\frac{\sigma^2}{M}$

distributed randomly. In this case, the almost linear relationship between log N and total CBDW (1) becomes an exponential relationship, as much in May as in July (see graph). On the other hand, whenever the clover is distributed by diffusion, there are no birds whatever the total CBDW is.

To explain it in another way, when the clover is randomly distributed and not in "clumps", and when there is a lot of it, a great number of birds will be seen feeding.

III - Practical Application and Conclusions

Since it is quite difficult to affect the distribution of clover, we preferred to affect its abundance (CBDW) by spreading a hormone which essentially kills the Dicotyledones. This was the U46 KV liquid, containing 350 g/l of 2, 4 DP, 150 g/l of Mecoprop and 100 g/l of 2, 4 MCPA. This herbicide was spread in April 1976 over two sections of land next to the Orly platform, four litres per hectare and 800 litres per hectare of water.

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(1) Regression equations:

X = CBDW total

Y = Log N

Y = 0. 64634 x - 0. 90763 (July) r = 0. 98095

Y = 0. 28897 x - 1. 97408 (May) r = 0. 99604

consequent modification of the ecology of the airport seems to be the most logical, effective and long-lasting approach.

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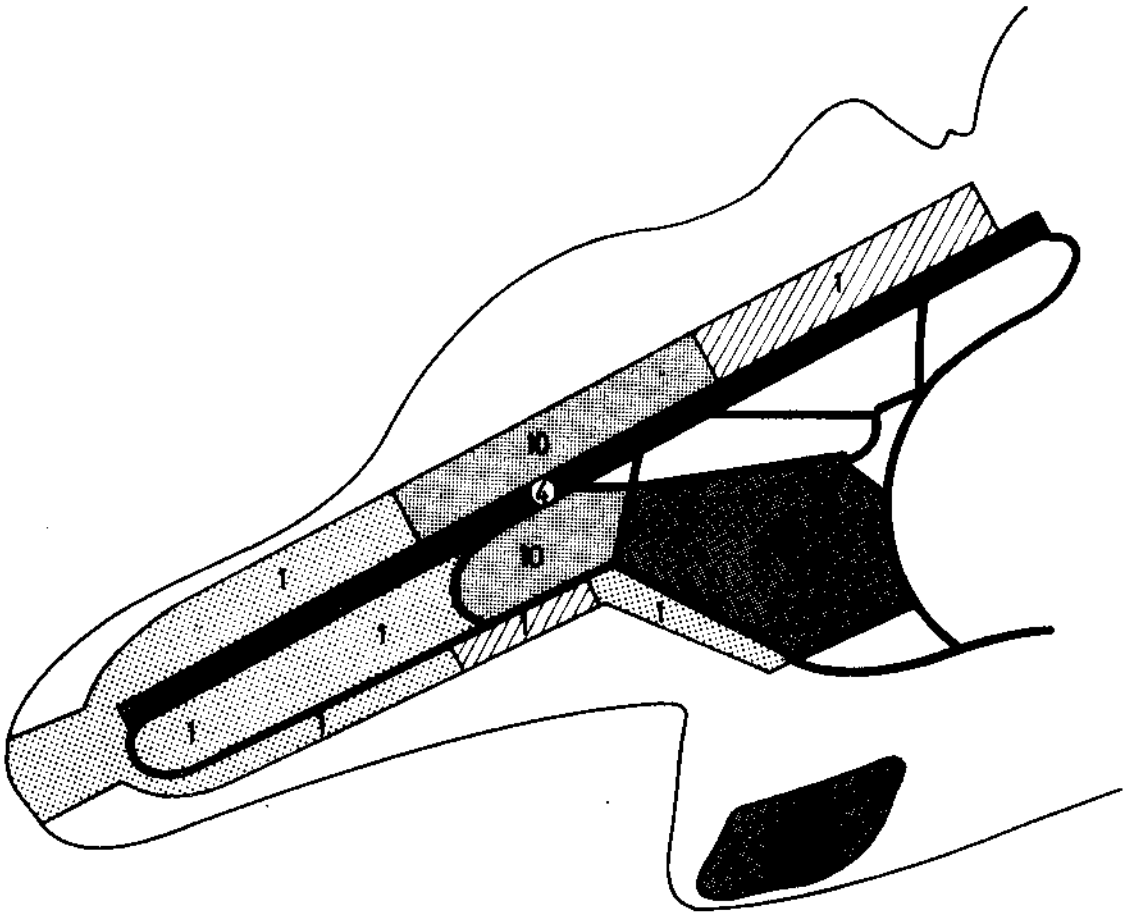
Numbers of woodpigeons in relation with abundance and distribution of clover



Contagious distribution of clovers, standing crop of clover very variable (between 1, 6 and 7, 5 g/m^2)

Distribution of clovers at random, standing crop very important (between 8, 4 and 13, 1 g/m^2)

Distribution of clovers at random, standing crop in the medium (between 3.9 and 4,0 g/m^2)

Distribution of clovers at random, very little of clover (between 1,3 and 2,8 g/m^2)

Graph n° 1

Relation between the number of woodpigeons (N) and the standing crop of clover measured in dry weight (SC DW) when it is distributed at random.